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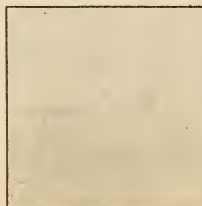
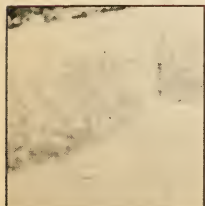
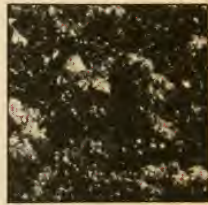
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1981-1982
Basic Day Colleges
Course Descriptions
and Curriculum Guide

Northeastern University



1981-1982 Basic Day Colleges Course Descriptions and Curriculum Guide

College of Arts and Sciences
Boston-Bouvé College of Human
Development Professions
College of Business Administration
College of Criminal Justice
College of Engineering
Lincoln College
College of Nursing
College of Pharmacy and
Allied Health Professions
University College Alternative
Freshman-Year Program

Northeastern University

Northeastern University charges tuition for all courses taken above the normal academic load.

The University reserves the right to make changes in the regulations and courses announced in this bulletin.

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Delivery of Services

The University assumes no liability, and hereby expressly negates the same, for failure to provide or delay in providing educational or related services or facilities or for any other failure or delay in performance arising out of or due to causes beyond the reasonable control of the University, which causes include, without limitation, power failure, fire, strikes by University employees or others, damage by the elements, and acts of public authorities. The University will, however, exert reasonable efforts, when in its judgment it is appropriate to do so, to provide comparable or substantially equivalent services, facilities or performance, but its inability or failure to do so shall not subject it to liability.

Equal Opportunity Policy

Northeastern University is committed to a policy of providing equal opportunity for all. In all matters involving admissions, registration, and all official relationships with students, including evaluation of academic performance, the University insists on a policy of nondiscrimination. Northeastern University is also an equal opportunity employer; it is institutional policy that there shall not be any discrimination against any employee or applicant for employment because of race, color, religion, sex, age, national origin, or on the basis of being a handicapped but otherwise qualified individual. In addition, Northeastern takes affirmative action in the recruitment of students and employees. Inquiries concerning our equal opportunity policies may be referred to the University Affirmative Action Officer and/or the Title IX coordinator, 175 Richards Hall, telephone 617-437-2139.

Children's Center

Northeastern University operates a Children's Center in 123 Forsyth Building; the Center is academically housed in the Boston-Bouvé College of Human Development Professions' Department of Curriculum and Instruction. Children from age 2 years and 9 months to 6 years are eligible. For further information, phone 437-3929.

College of Arts and Sciences

The following models illustrate the kinds of curricula from which an upperclass student in the College of Arts and Sciences may select his/her program. Since the College offers programs leading to two degrees in most majors—the Bachelor of Arts and the Bachelor of Science—students should discuss their academic needs and goals with departmental faculty advisers and counselors in the College to determine the program most appropriate for them.

Generally, the Bachelor of Science requires greater concentration in the major field of study. Requirements for the Bachelor of Arts degree include minimum "distribution requirements" (courses in the humanities, social sciences, science/mathematics) and completion of a modern foreign language through the intermediate level.

Other programs available include an Interdisciplinary major in Human Services which is described in the University *Bulletin* and an Independent major, whereby an eligible student may, with approval and guidance, design his/her own major. Information about these and all other programs is available in the Dean's Office.

College of Arts and Sciences Junior-Senior Honors Projects

Juniors and seniors with superior accomplishments in their majors and a high overall average may be invited by the Honors Committee to do special honors work during two or three of their last four quarters. Such work normally takes the form of a special research project, scheduled as a four credit-hour course during each term in which it is pursued.

ELIGIBILITY

The College of Arts and Sciences has established these standards for honors work eligibility:

- Minimum of 3.50 cumulative quality-point average (QPA) at Northeastern as of the time of application*

- No F's or I's

- No C's or D's in major field.

*Applicable only to students who matriculate in fall 1978 or later. Students entering prior to fall 1978 must have a minimum QPA of 3.0.

Sometimes, with the approval of the major department and the Honors Committee, exceptions can be made. The Honors Committee invites all eligible students to apply for the program and also reviews applications from students normally not eligible, but asking for special consideration. Requests for special consideration can be made by faculty members on behalf of students they deem to be serious and highly motivated scholars.

No more than four quarter hours of honors work may be taken each term unless the Honors Committee grants special permission. Students must register in their departments for the appropriately numbered honors course, for which they receive a grade from their advisers at the end of each term. The Honors Committee and the student's major department insist that the student's honors work remain consistently excellent. Should the work fall below standard, the project will be subject to review and possible termination.

Written application for an honors project must be submitted to the Honors Program Office. This application is reviewed by the Honors Committee (composed of faculty of the college) and approval is based on the merits of the individual proposal. For information regarding eligibility or completion of the application, a student should consult the Honors Program Director.

Honors Program Courses

10.181, 182, 183 (H), Calculus for Honors Science Majors; 23.101, 102, Western Civilization; 30.195, 196, Freshman English for Honors Students; 93.xxx, yyy, zzz, Interdisciplinary Honors Seminars; 93.249, Honors Seminar: Survey of the Social Sciences; 93.250, Honors Seminar: Survey of the Natural Sciences; 93.251, Honors Seminar: Survey of the Humanities.

Adjunct Mini-Courses: Adjunct mini-courses meet for one hour per week with the instructor of a regular four credit-hour course in which the students in the mini-course are concurrently or recently enrolled. The extra hour enables the honors students to explore the subject of the main course more thoroughly, in a small group setting. Four mini-courses can count as a four credit-hour elective towards graduation. The University allows students to register tuition free for one credit hour per quarter, so the adjunct mini-courses can in most cases be tuition free. The subjects

of mini-courses are equitably distributed among departments. Ten to fifteen mini-courses are offered each year, three to five each term. Course numbers and a schedule for the school year for mini-courses are available from the Honors Program Office.

African-American Studies

Courses in the department are organized under seven major subject areas: Applied Sciences, Economics, Education, History, Humanities, Political Science, and Sociology/Psychology. Courses taken in the Department may be credited toward degree requirements for all Arts and Sciences students.

Bachelor of Arts Bachelor of Science

African-American Studies majors may study for either the Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) degree. All majors are required to take the following courses:

- 25.237 African-American History I
- 25.201 African-American Literature I
- 25.210 Contemporary Issues in Black Society
- 25.269 Race Relations in America
- 25.170 Economic Issues in Minority Communities
- 25.255 Public Policy Analysis
- 25.212 The Black Family
- 25.191 Research Seminar
- 25.195 Directed Study for Senior Thesis
- 25.194 Field Research Seminar for Seniors

Faculty advisers work with students to help them select electives within their chosen area of concentration to fulfill their distribution and language requirements for the degree of Bachelor of Arts or career package programs for the degree of Bachelor of Science.

Minor in African-American Studies

In an effort to meet the educational and career needs of students who are majoring in other areas but have special interests in African-American Studies, the Department offers a minor in African-American Studies. The program consists of a core of three courses as well as a broad range of electives and minor concentration clusters to accommodate individual needs. To qualify for a minor in African-American Studies, a student must take 28 quarter hours in the field, as described below.

Required Courses: 25.269, Race Relations in America; 25.191, Research Seminar; and 25.200, Introduction to African-American Studies.

Elective/Concentration Clusters: Any four courses in African-American Studies of an advanced nature, to be selected by the student and department adviser in line with the student's education and career needs: i.e., a student interested in health careers might select a list of minor electives which would include Black Scientific Development, Community Medicine and Health Care, the Epidemiology of Black Diseases, and Poverty and Health Care.

Art

Bachelor of Arts

27.118, 27.119, History of Art I and II; twelve art electives; two history electives; one music elective; and one philosophy elective.

Foreign language and distribution requirements.

Bachelor of Science

27.118, 27.119, History of Art I and II; twelve art history electives; two history electives; one music elective; and one philosophy elective.

Minors in Art

Architecture: 27.177, Introduction to Architecture; 27.175, Late-Nineteenth Century American Architecture; 27.176, Contemporary Architecture and the City; 27.173, Modern Architecture and the City; 27.201, Architecture and the City; 27.196, Boston Architecture — Past and Future.

Painting: 27.139, Medieval Painting and Sculpture; 27.191, Renaissance Art; 27.151, Modern Painting; 27.161, American Art I; 27.137, French Painting; 27.162, American Art II.

Film and Photography: 27.121, Contemporary Directions in Cinema; 27.186, Documentary Film; 27.163, The American Film; 27.190, Filmmaking Workshop; 27.150, History of Photography; 27.189, Photography.

Studio Art: 27.113, Drawing; 27.115, Painting; 27.129, Photo Silkscreen; 27.185, Graphic Arts — Woodcutting; 27.185, Graphic Arts — Silkscreen; 27.194, Life Drawing.

General Minor: Selection of any six courses from the department curriculum.

Biology

Bachelor of Arts

18.111, Principles of Biology I; 18.112, Principles of Biology II; 18.113 Vertebrate Systems, Bio III; 18.134, Environmental and Population Biology; 18.135, Genetics and Developmental Biology; 18.136, Cell Physiology and Biochemistry (formerly Cell Biology); four biology electives approved by departmental Advisory Committee.

Fundamentals of Mathematics or Calculus (one year); 11.171, 172, Physics for the Life Sciences I and II; 11.173, 174, Physics Laboratory for the Life Sciences I and II or 11.117, Physics for Science Majors I; 11.119, Physics for Science Majors III; 11.147, 149, Physics Laboratory for Science Majors I and III; 12.106, General Chemistry; 12.119, General Chemistry II; 12.171, Analytical Chemistry; 12.144, 145, Organic Chemistry I and II.

Foreign language and distribution requirements.

Bachelor of Science

18.111, Principles of Biology I; 18.112, Principles of Biology II; 18.113, Vertebrate Systems, Bio III; 18.134, Environmental and Population Biology; 18.135, Genetics and Developmental Biology; 18.136, Cell Physiology and Biochemistry; 18.280, Senior Seminar; four biology electives approved by departmental Advisory Committee.

Calculus (one year); 11.117, 118, 119, Physics for Science Majors I, II and III; 11.147 and 11.148 or 11.149, Physics Laboratory for Science Majors I and II or III; 12.106, General Chemistry I; 12.119, General Chemistry II; 12.171, Analytical Chemistry; 12.144, 145, Organic Chemistry I and II; two approved science electives.

Foreign language requirement.

Chemistry

Bachelor of Arts

12.127, 128, General Chemistry I and II; 12.129, The Chemical Elements; 12.172, Analytical Chemistry; 12.153, 154, 155, Organic Chemistry I, II, and III; 12.161, 162, 168, Physical Chemistry I, II, and III; 10.184 Calculus and Linear Methods I or 10.153 Calculus; 12.179, Instrumental Analysis.

10.181, 182, 183, Calculus I, II, and III; 11.117, 118, 119, Physics for Science Majors I, II, and III; 11.148, 149, Physics Laboratory for Science Majors II and III.

Foreign language and distribution requirements.

Bachelor of Science

12.127, 128, General Chemistry I and II; 12.129, The Chemical Elements; 12.172, Analytical Chemistry; 12.153, 154, 155, Organic Chemistry I, II, and III; 12.161, 162, 168, Physical Chemistry I, II, and III; 10.184 Calculus and Linear Methods I or 10.153 Calculus; 12.179, Instrumental Analysis; 12.213, Inorganic Chemistry; 12.532, Identification of Organic Compounds; two advanced science or mathematics electives; one advanced laboratory.

10.181, 182, 183, Calculus I, II, and III; 10.186 Differential Equations and Linear Methods I or 10.156 Mathematical Analysis; 11.117, 118, 119, Physics for Science Majors I, II, and III; 11.148, 149, Physics Laboratory for Science Majors II and III.

Minor in Chemistry

After a general chemistry sequence, 12.172, Analytical Chemistry; 12.153, 154, 155, Organic Chemistry I, II, III; 12.161, 162, Physical Chemistry I, II.

Drama

Bachelor of Arts

The following courses are to be taken by students in their freshman year: 29.121, *Theatre Appreciation*; 29.122, *Theatre Experience*. (Those students entering the major after their freshman year may waive the requirements of 29.121 and 29.122 by successful completion of a departmental examination.)

After his/her freshman year, the student selects one of three specializations: acting and directing; technical theatre; or playwriting/dramatic criticism/theatre history, and enrolls in the courses required for the particular concentration selected:

Acting and Directing: 29.109, Speech for the Theatre; 29.110, Voice and Articulation; 29.111, Oral Interpretation; 29.130, Stage Makeup; 29.151, Acting II; 29.156, Body Movement I; 29.161, Problems in Direction.

Technical Theatre: 29.130, Stage Makeup; 29.172, Set Design for the Stage; 29.173, Lighting Design for the Stage; 29.175, Costuming I; 29.176, Costuming II; 29.178, Theatre Crafts.

Playwriting, Dramatic Criticism, Theatre History: 29.111, Oral Interpretation; 29.161, Problems in Direction; 29.172, Set Design for the Stage; 29.180, Playwriting I; 29.181, Playwriting II; 29.107, New Trends in American Theatre.

In addition, all Drama majors must complete the following courses: 29.150, *Acting I*; 29.160, *Concepts of Direction*; 29.170, *Stagecraft*; 29.200, *Theatre History I*; 29.201, *Theatre History II*; 29.218, *Research for Theatrical Production*; 29.240, *Dramatic Theory/Criticism*; 29.164, 29.165, 29.166, and 29.167, *Theatre Practicum*; and 29.280, *Senior Project in Drama*.

Eight quarter hours psychology or four quarter hours each anthropology and sociology.

Foreign language and distribution requirements.

In addition, the Department recommends that a physical education skills course be selected each quarter.

Bachelor of Science

The following courses are to be taken by students in their freshman year: 29.121, *Theatre Appreciation*; 29.122, *Theatre Experience*. (Those students entering the major after their freshman year may waive the requirements of 29.121 and 29.122 by successful completion of a departmental examination.)

After his/her freshman year, the student selects one of three specializations: acting and directing; technical theatre; or playwriting/dramatic criticism/theatre history, and enrolls in the courses required for the particular concentration selected:

Acting and Directing: 29.109, Speech for the Theatre; 29.110, Voice and Articulation; 29.111, Oral Interpretation; 29.130, Stage Makeup; 29.151, Acting II; 29.156, Body Movement I; 29.161, Problems in Direction.

Technical Theatre: 29.130, Stage Makeup; 29.172, Set Design for the Stage; 29.173, Lighting Design for the Stage; 29.175, Costuming I; 29.176, Costuming II; 29.178, Theatre Crafts.

Playwriting, Dramatic Criticism, Theatre History: 29.111, Oral Interpretation; 29.161, Problems in Direction; 29.172, Set Design for the Stage; 29.180, Playwriting I; 29.181, Playwriting II; 29.207, New Trends in American Theatre.

In addition, all Drama majors must complete the following courses: 29.150, *Acting I*; 29.160, *Concepts of Direction*; 29.170, *Stagecraft*; 29.200, *Theatre History I*; 29.201, *Theatre History II*; 29.218, *Research for Theatrical Production*; 29.240, *Dramatic Theory/Criticism*; 29.164, 29.165, 29.166, and 29.167, *Theatre Practicum*; and 29.280, *Senior Project in Drama*.

- Minor in Drama**
- In addition, the Department recommends that a physical education skills course be selected each quarter.
- Required of all minors: 29.121, *Theatre Appreciation* and 29.122, *Theatre Experience*.
- Six (6) additional courses must be taken in one of the three tracks, including: *Performance Minor*: 29.150, *Acting I*; 29.160, *Concepts of Direction*; 29.156, *Body Movement I*; 29.159, *Theatre Games*; 29.185, *Children's Theatre*.
- Technical Theatre/Design*: 29.170, *Stagecraft*; 29.172, *Scene Design*; 29.173, *Lighting Design for the Stage*; 29.175, *Costuming I*; 29.270, *Theatre Management*.
- Drama Literature and Criticism*: 29.200, *History of the Theatre I*; 29.201, *History of the Theatre II*; 29.180, *Playwriting*; 29.232, *Comic Theatre*; 93.160, *American Musical Theatre*; 29.140, *Drama Criticism*.

Economics

- Bachelor of Arts**
- 39.115, 116, Principles and Problems of Economics I and II; 39.250, 251, Statistics I and II; 39.255, Microeconomic Theory; 39.256, Macroeconomic Theory; six economics electives.
- 10.104, 105, Fundamentals of Mathematics I and II; four social science electives other than economics.
- Foreign language and distribution requirements.
- Bachelor of Science**
- 39.115, 116, Principles and Problems of Economics I and II; 39.250, 251, Statistics I and II; 39.255, Microeconomic Theory; 39.256, Macroeconomic Theory; 39.293, Introduction to Econometrics or 39.294, Problems in Economic Research; ten economics electives.
- 10.104, 105, Fundamentals of Mathematics I and II; four social science electives other than economics.
- Minor in Economics**
- 39.115, 116, Principles and Problems of Economics I and II; 39.255, Microeconomic Theory; 39.256, Macroeconomic Theory; four electives in economics. Electives to be selected with the advice of a department adviser. Any course taken outside the Department of Economics to satisfy these economics-elected requirements must be approved by a faculty adviser in the Department.

English

- Bachelor of Arts**
- 30.170, 30.171, Survey of English Literature I and II; either 30.180 or 30.181, Survey of American Literature I or II; one British literature course; one American literature course; one figure course; one genre course; one language and writing course; one junior-senior seminar; four English electives.
- Foreign language and distribution requirements.
- Bachelor of Science**
- 30.170, 30.171, Survey of English Literature I and II; either 30.180 or 30.181, Survey of American Literature I or II; one British literature course; one American literature course; one figure course; one genre course; one language or writing course; one junior-senior seminar; four English electives.
- Minor in Literature**
- Distribution requirements as required for the Bachelor of Arts program. *Six courses required. Two survey courses required from the following:* 30.170, Survey of English Literature I; 30.171, Survey of English Literature II; 30.180, Survey of American Literature I; 30.181, Survey of American Literature II. One course from *two* of the following categories: (a) language or writing (e.g. History of the English Language, linguistics, semantics, criticism, creative writing, expository writing); (b) British literature; (c) American literature; (d) major figure; or (e) genre. *One* elective; junior-senior seminar.

Minor in Writing

Six courses required. Four courses from among the following writing courses: 30.104, Intermediate Expository Writing; 30.108, Creative Writing; 30.228, Nonfiction Workshop; 30.200, Technical Writing I; 30.201, Technical Writing II; 30.203, Writing for the Professions: Health Services; 30.204, Advanced Expository Writing, 30.205, Writing for the Professions: Business Administration; 30.206, The Literature of Engineering; 30.207, Writing for the Professions: Criminal Justice; 30.208, Poetry Workshop; 30.209, Fiction Workshop; 30.215, Publication Arts. Two elective courses. (If the student desires, one or both of the electives may be selected from the writing courses listed above.)

Sample Programs: (a) 30.108, Creative Writing; 30.228, Nonfiction Workshop; 30.209, Fiction Workshop; 30.208, Poetry Workshop; 30.154, Modern Short Story; 30.167, Literature and Politics, (b) 30.104, Intermediate Expository Writing; 30.200, Technical Writing I; 30.201, Technical Writing II; 30.204, Advanced Expository Writing; 30.215, Publication Arts; 30.168, Literature and Science.

Geology

Bachelor of Arts

16.201, Physical Geology; 16.203, Physical Geology Laboratory; 16.202, Historical Geology; 16.204, Historical Geology Laboratory; 16.215, Descriptive Mineralogy; 16.217, Optical Crystallography; 16.218, Petrography; 16.271, Geology Seminar; six geology electives.

10.104, 105, Fundamentals of Mathematics I and II or 10.105, 107, Calculus I and II; 11.117, Physics for Science Majors I or 11.171, Physics for the Life Sciences I; 12.106, General Chemistry I; 12.119, General Chemistry II.

Foreign language and distribution requirements.

Bachelor of Science

10.105, 107, Calculus I and II or 10.150, 151, 152, Calculus I, II and III; 11.117, 118, 119, Physics for Science Majors I, II, and III; 12.106, 12.119, or 12.127, 12.128, General Chemistry I and II; 12.172 or 12.171, Analytical Chemistry or 12.161, Physical Chemistry or 16.214, Geochemistry; two approved additional science electives; six courses in the humanities and/or social sciences, 16.271, Senior Seminar; eight geology electives.

Minor in Geology

16.201, Physical Geology; 16.202, Historical Geology; 16.215, Descriptive Mineralogy; plus two of the following one-credit laboratories: 16.203, Physical Geology Laboratory; 16.204, Historical Geology Laboratory; 16.206, Rock Identification Laboratory; plus four geology electives (16.214 or higher number) chosen with the approval of the Earth Science Department.

History

Bachelor of Arts

23.101, 102, Western Civilization I and II; 23.210, 211, United States to 1877 and United States since 1877; 23.199, The Historian's Craft; ten history electives distributed as follows; two courses in Group A (ancient, medieval, early modern Europe); two courses in Group B (modern Europe); two courses in Group C (America); two courses in Group D (other regions); two courses in any of the above groups.

Foreign language and distribution requirements.

Recommended: courses in the related social sciences.

Bachelor of Science

23.101, 102, Western Civilization I and II; 23.210, 211, United States to 1877 and United States since 1877; 23.199, The Historian's Craft; 23.200, Social Science Methodology; twelve history electives distributed as follows: two courses in Group A (ancient, medieval, early modern Europe); two courses in Group B (modern Europe); two courses in Group C (America); two courses in Group D (other regions); four courses in any of the above groups.

One course in Introductory Statistics (e.g., 19.120, 21.239, 39.250); one course in computers from the following: 10.108, Probability, Statistics, and the Computer; 10.130, Introduction to Computers and Computa-

Minor in History

tions; 93.113, Computers for the Social Sciences; three of the following: 39.115, Principles of Economics; 21.100, Introduction to Sociology; 20.100, Principles of Social Anthropology; 22.110, Introduction to Politics; 19.105, Foundations of Psychology; 18.119, Environment and Man. (Substitutions only with approval of the Department Chairperson.) 32 Q.H. of history, of which 8 Q.H. must be selected from the following: 23.101, Western Civilization I; 23.102, Western Civilization II; 23.210, U.S. to 1877; 23.211, U.S. since 1877.

Human Services

Bachelor of Arts

Prerequisite Courses: (six) 21.100, Introduction to Sociology or 50.114, Education and Social Science; 50.166, The Human Services Professions; 19.105 and 19.106, Foundations of Psychology I and II or 50.121 and 50.131, Human Development and Learning I and II; 22.111, Introduction to American Government; 39.115 or 39.116, Principles and Problems of Economics or equivalent.

Core Courses: (nine) 19.120, Statistics in Behavior Science I or 21.239, Introduction to Statistical Analysis or 50.142, Introduction to Educational Statistics; 19.160, Experimental Design in Psychology or 21.240, Research Methods I or 21.243, Human Services Research and Evaluation or 22.120, Conceptual Foundations of Contemporary Political Analysis; 21.157, Sociology of Human Services Organizations; 19.135, Personality I; 19.202, Abnormal Psychology I; 50.167, Education and Psychosocial Development; 29.141, Interpersonal Communications II or 29.117, Group Discussion or 50.133, Educational Applications of Social Psychology or 50.161, Seminar in Group Process; 53.266, Intervention Strategies; 93.232, Senior Seminar.

Specified Electives: (any three courses) 21.112, Sociology of Poverty; 21.125, The Sociology of Private and Public Assistance; 21.221, Seminar in Social Welfare; 22.160, The Politics of Poverty; 39.278, Income Inequalities and Discrimination; 25.210, Contemporary Issues in Black Society; 25.224, Black Cultural Development in the United States; 25.279, Minorities, Ethnicity, and Human Rights; 50.164, Class and Ethnic Relations in Education; 56.120, Introduction to Special Education.

Specializations: (five courses in any one specialization) Specializations are individually constructed by the student and his or her adviser. Alternatives are grouped in three broad clusters: Clinical, Community, and Administration.

Fieldwork: 93.230, Human Services Fieldwork I; 93.231, Human Services Fieldwork II.

Interdisciplinary

Independent Major

An eligible student may petition the College Curriculum Committee to meet requirements for the B.A. degree in an Independent Major. Eligibility, procedures, and requirements must be discussed in advance with an adviser in the Dean's Office. No student may be considered an Independent Major until a curriculum proposal has been submitted to, and approved by, the Curriculum Committee.

Minor in Media Studies

To qualify for a minor in Media Studies, the student must complete a minimum of seven courses distributed as follows: Required Courses (2): 29.127, The Mass and the Media; one of 29.119, Communication Theory, or 29.133, Theories of Audience Behavior, or 93.145, Exploring Humanities through Film. Electives (5); one elective course from each of the following categories: Media and Culture (appreciative and criticism), Media Studies (historical and structural aspects), Media Production, and two additional electives from any of the three categories above or Interdisciplinary course choices subject to adviser approval. Individual student programs will be developed in consultation with faculty advisers. Interested students should contact Professor Herman (History) for information on program development and elective choices.

Journalism

Bachelor of Arts

38.101, 102, History and Principles of Journalism I and II; 38.103, 104, Fundamentals of Newswriting I and II; 38.105, 106, Techniques of Journalism I and II; 38.107, 108, Press and Society I and II.

23.210, 211, United States to 1877 and United States since 1877; two history electives; 30.170, 171, Survey of English Literature I and II; *30.103, Grammar for Journalists; two English electives; two political science electives; 39.115, 116, Principles and Problems of Economics I and II.

Foreign language and distribution requirements.

Note: Remember the distribution requirements of the College. Students must have 40 hours outside of humanities courses. (Journalism courses are considered humanities courses.) This means 16 hours (or 24) in the social sciences—economics, history, political science, psychology, sociology, or anthropology.

Students must also have 16 hours (or 24) in the sciences—biology, chemistry, mathematics, earth sciences, physics, or psychology (lab courses only).

The language requirement means completing two years (elementary and intermediate) in the same foreign language on a college or university level. On the high school level it means completing four years (or equivalent) in the same foreign language.

Bachelor of Science

38.101, 102, History and Principles of Journalism I and II; 38.103, 104, Fundamentals of Newswriting I and II; 38.105, 106, Techniques of Journalism I and II; 38.107, 108, Press and Society I and II.

23.210, 211, United States to 1877 and United States since 1877; two history electives; 30.170, 171, Survey of English Literature I and II; *30.103, Grammar for Journalists; two English electives; 39.115, 116, Principles and Problems of Economics I and II; six mathematics and/or science electives; two political science electives.

*Required for freshmen and transfer students entering in fall 1978 and all subsequent quarters.

Linguistics

Bachelor of Arts

Freshman Requirements: 30.113, Freshman Writing; 30.114, Introduction to Literature; mathematics course; two courses from the humanities; two from the sciences; and two from the social sciences.

Distribution Requirements: One or more additional science courses and two or more additional humanities courses for a total of five additional courses in science and humanities. (Some of these requirements can be met by fulfilling the general requirements and additional courses requirements in the major.)

General Requirements: 30.120, Introduction to Linguistics; 19.155, Introduction to Language and Cognition; 19.152, Introduction to Phonetics and Phonology; 20.130, Language and Culture; 30.125, Grammars of English; 33.235, Applied Linguistics.

Language Proficiency: Two advanced courses in a spoken, second language (see Bachelor of Sciences for proficiency in American Sign Language).

Additional Courses: Five courses from the following: 19.151, Bilingualism; 19.153, Child Language; 19.154, Linguistics of American Sign Language; 19.157, Cognition; 19.182, Neurolinguistics; 19.235, Animal Communication; 19.247, Body Language; 26.127, Philosophy of Language; 26.151, Symbolic Logic; 30.121, Foundations of the English Language; 30.126, Transformational Grammar; 30.130, Introduction to Semantics; 30.131, Topics in Linguistics; 33.236, Advanced Applied Linguistics; 33.237, Language Testing.

Laboratory Course: 19.195, Laboratory in the Psychology of Language.

Seminars: Two of the following: 19.272, Seminar in the Psychology of Language; 19.277, Seminar in Speech and Language Processing; 30.280, Seminar in Stylistics.

Practicum: One course: fieldwork, directed study, sign language teaching, or interpreting.

Bachelor of Science

Same requirements as the Bachelor of Arts, except that American Sign Language can count towards the second-language proficiency requirement.

Mathematics

Bachelor of Arts

10.181, 182, 183, Calculus I, II, and III; 10.184, 185, Calculus and Linear Methods I and II; 10.186, 187, Differential Equations and Linear Methods I and II; 10.246, Linear Algebra and 10.250, Analysis I; four approved mathematics electives selected in consultation with an adviser.

11.117, 118, 119, Physics for Science Majors I, II and III.

Foreign language and distribution requirements.

Bachelor of Science

10.181, 182, 183, Calculus I, II, and III; 10.184, 185, Calculus and Linear Methods I and II; 10.186, 187, Differential Equations and Linear Methods I and II; 10.246, Linear Algebra and 10.250, Analysis I; seven approved mathematics electives selected in consultation with an adviser.

11.117, 118, 119, Physics for Science Majors I, II, and III; two nonscience courses.

Bachelor of Science in Computer Science

The Bachelor of Science degree in Computer Science is conferred jointly with the College of Engineering (Department of Industrial Engineering).

The general course requirements, for a total of 179 quarter hours, are: Twenty-four quarters of calculus based mathematics including 10.150-10.153, Calculus; 10.210, Discrete Mathematics; 10.246, Linear Algebra.

Eight quarter hours of calculus based probability and statistics (10.208 and 10.220).

Twenty quarter hours in algorithms and programming including both assembly languages and high level languages (06.100 and 06.101, Computer Science I and II; 09.XXX Applied Programming; 06.130, 06.131, Assembly Language I and II).

Twelve quarter hours in physics (in special cases chemistry or biology).

Thirty-six quarter hours of social science/humanities, English and professional writing.

Forty quarter hours of computer science including 06.220, File Processing; 06.201, Data Structures; 06.265, Analysis of Algorithms; 06.240, Programming Languages; 06.230, Operating Systems; 06.260, Compilers; 06.250, Automata; 06.291, Project; and 06.295, Seminar.

Eight quarter hours of computer design and organization (03.191 and 03.192).

Twenty-eight quarter hours of student selected coordinated studies.

Three quarter hours of Programming Language Laboratory (06.110, 06.111, and 06.112).

Minor in Computer Science

Required Courses: 10.130, Introduction to Computers and Computations; 10.131, Introduction to Computer Sciences; 10.214 or 06.130, Assembly Language; 10.215 or 06.201, Data Structures.

Electives: Three advanced mathematics or computer science courses that have to be approved by the department.

Modern Languages

Bachelor of Arts

Eight advanced electives in the major language;* two advanced electives in the minor language.*

30.170, 171, Survey of English Literature I and II; 23.101, 102, Western Civilization I and II; two additional history electives.

Distribution requirements.

Bachelor of Science

Twelve advanced electives in the major language* including two conversation and composition courses; six advanced electives in the minor language* including two conversation and composition courses.

23.101, 102, Western Civilization I and II.

*Courses beyond the intermediate level.

Philosophy

Bachelor of Arts

26.110, Classic Greek Philosophers; 26.111, Modern Philosophy; 26.150, Introduction to Logic or 26.151, Symbolic Logic; 26.152, Theory of Knowledge or 26.153 Metaphysics or 26.155, Moral Philosophy; one philosophy seminar; eight philosophy electives.

Foreign language and distribution requirements.

Bachelor of Science

26.110, Classic Greek Philosophers; 26.111, Modern Philosophy; 26.150, Introduction to Logic or 26.151, Symbolic Logic; 26.152, Theory of Knowledge or 26.153, Metaphysics or 26.155, Moral Philosophy; one philosophy seminar; eight philosophy electives.

Minor in Philosophy

To qualify for a minor in philosophy, a student must take 28 credit hours in philosophy. These will be distributed as follows:

INTRODUCTORY COURSES: 26.101, Introduction to Philosophy I or 26.102, Introduction to Philosophy II or 26.105, Introduction to Scientific Method; HISTORY OF PHILOSOPHY: 26.110, Classical Greek Philosophy or 26.111, Modern Philosophy; LOGIC REQUIREMENT: 26.150, Introduction to Logic or 26.151, Symbolic Logic; and at least one of the following courses; 12.125, Philosophy of Mind, 26.152, Theory of Knowledge, 26.153, Metaphysics, 26.155, Moral Philosophy; ELECTIVES: Three electives in Philosophy.

Physics

Bachelor of Arts

11.117, 118, 119, Physics for Science Majors I, II, and III, and their associated laboratories — 11.147, 148, 149; 11.127, Intermediate Mechanics; 11.128, Electric and Magnetic Fields; three upper-level physics lecture courses; three upper-level physics laboratory courses.

10.181, 182, 183, Calculus I, II, and III; 10.184, 185, Calculus and Linear Methods I and II; one advanced mathematics elective.

Foreign language and distribution requirement.

Bachelor of Science

11.117, 118, 119, Physics for Science Majors, I, II, and III, and their associated laboratories — 11.147, 148, 149; 11.127, Intermediate Mechanics; 11.128 Electric and Magnetic Fields; 11.208, Mathematical Physics; 11.220, Thermodynamics and Kinetic Theory; 11.221, Wave Motion and Optics; 11.230, Modern Physics; 11.200, Classical Mechanics; 11.211, 212, Electricity and Magnetism I and II; three upper-level physics laboratory courses.

10.181, 182, 183, Calculus I, II, and III; 10.184, 185, Calculus and Linear Methods I and II; two advanced mathematics electives; five additional electives from those approved for majors in the following fields: physics, mathematics, chemistry, engineering, biology, and geology.

Political Science

Bachelor of Arts

22.110, Introduction to Politics; 22.111, Introduction to American Government; 22.112, Introduction to International Relations; 22.113, Introduction to Foreign Governments and Societies (formerly titled Introduction to Comparative Politics); 22.261, Public Administration; one political theory/thought course selected from the following: 22.270, 22.273, 22.274; seven political science electives.

Six social science electives selected from at least three of the following areas: African-American studies, anthropology, economics, history, psychology, and sociology.

Foreign language and distribution requirements.

Bachelor of Science

22.110, Introduction to Politics; 22.111, Introduction to American Government; 22.112, Introduction to International Relations; 22.113, Introduction to Foreign Governments and Societies (formerly titled Introduction to Comparative Politics); *22.121, Research Methods I; *22.122, Research Methods II; 22.261, Public Administration; and one political theory/thought course selected from the following: 22.270, 22.273, 22.274; six political science electives.

Six social science electives selected from at least three of the following areas: African-American studies, anthropology, economics, history, psychology, and sociology.

*22.121 and 122 replace 22.280, 281, and 286.

Minor in Political Science

Any two of the following courses: 22.110, Introduction to Politics; 22.111 Introduction to American Government; 22.112, Introduction to International Relations; 22.113, Introduction to Foreign Governments and Societies; 22.261, Public Administration; any five additional courses offered by the Department of Political Science for Political Science majors, including courses listed above that have not been selected to fulfill the above requirement.

Concentration in Public Administration

Bachelor of Science

22.110, Introduction to Politics; 22.111, Introduction to American Government; *22.121, Research Methods I; **22.122, Research Methods II; 22.260, Public Policy Analysis; 22.261, Public Administration; 22.266, Public Personnel Administration; 22.267, Public Budgeting, ***22.262,

Organization Theory; and one political theory/thought course selected from the following: 22.270, 22.273, 22.274; four public administration electives.

Six social science electives selected from at least three of the following areas: African-American studies, anthropology, economics, history, psychology, and sociology.

* Replaces 22.281.

** New degree requirement for students entering or transferring into Northeastern in fall 1975 or later.

*** New degree requirement for students entering or transferring into Northeastern in fall 1977 or later.

Psychology

Bachelor of Arts

General Requirements: Freshman requirements (note 1); Arts and Sciences distribution requirements; Foreign Language requirements; 23.101, Western Civilization I or 23.102, Western Civilization II; 19.105 and 19.106, Foundations of Psychology I and II; 19.120 and 19.121, Statistics in Behavioral Sciences I and II, 19.130, Social Psychology or 19.135, Personality I; 19.149, Sensation or 19.150, Perception; 19.155, Language and Cognition; 19.164, Learning and Motivation I; and 19.178, Physiological Bases of Psychology I.

Students choose either General Psychology or one of four areas of concentration: Language and Cognition; Learning and Behavior Analysis; Personality and Social Psychology; or Sensory and Neuropsychology. The additional courses required for each concentration follow:

General psychology: four psychology electives (note 2); three psychology laboratories; and one psychology seminar.

Language and Cognition: 19.151, Bilingualism; 19.152, Introduction to Phonetics; two psychology electives (note 2); 19.195, Laboratory in Psycholinguistics, 19.290, Directed Study in Language and Cognition; and one additional psychology laboratory; and 19.271, Seminar in Cognition or 19.272, Seminar in the Psychology of Language.

Learning and Behavior Analysis: 19.168, Behavior Change in Institutions; 19.169, Learning and Motivation II; one of the PSI Teaching Practica, 19.250-19.268 (even numbered); one of the Advanced PSI Teaching Practica, 19.251-19.269 (odd numbered); 19.165, Learning and Motivation Laboratory; 19.171, Behavior Modification Laboratory; one additional psychology laboratory; and one seminar, either 19.166, Introduction to Programmed Learning; 19.270, Seminar in Behavior Theory; or 19.276, Seminar in Behavior Modification.

Personality and Social Psychology: 19.130, Social Psychology or 19.135, Personality I (note 3); 19.136, Personality II; 21.107, Social Psychology (note 4); two additional courses, either 20.151, Aggression (note 4); 20.160, Sex, Sex Roles, and Family (note 4); 21.151, Sociology of Prejudice (note 4), or 29.115, Theories of Persuasion (note 4); 19.133, Laboratory in Social Psychology or 19.138, Laboratory in Personality; two additional psychology laboratories; and one seminar, either 19.275, Seminar in Social Psychology; 19.273, Seminar in Clinical Psychology and Personality; or 21.207, Seminar in Social Psychology (note 4).

Sensory and Neuropsychology: 19.149, Sensation or 19.150, Perception, (note 3); 19.179, Physiological Bases of Psychology II; 19.180, Neuropsychology; 19.183, Biological Bases of Motivation or 19.186, Comparative Psychology and Ethology; 19.162, Sensation and Perception Laboratory; 19.181, Laboratory in Physiological Psychology; one additional psychology laboratory; and 19.274, Seminar in Sensory and Physiological Psychology.

Bachelor of Science

General Requirements: Freshman requirements (note 1); 23.101, Western Civilization I or 23.102, Western Civilization II; three additional courses in mathematics, physics, chemistry, or biology, including at least one from 11.171 and 11.173, Physics for the Life Sciences I and Laboratory; 12.106, General Chemistry; or 18.131, General Biology; 19.105 and 19.106, Foundations of Psychology I and II; 19.120 and 19.121, Statistics in Behavioral Sciences I and II; 19.130, Social Psychology or 19.135, Personality I; 19.149, Sensation or 19.150, Perception; 19.155, Language and Cognition; 19.164, Learning and Motivation I; and 19.178, Physiological Bases of Psychology.

Students choose either General Psychology or one of four areas of concentration: Language and Cognition; Learning and Behavior Analysis; Personality and Social psychology; or Sensory and Neuropsychology. The additional courses required for each concentration follow:

General Psychology: six psychology electives (note 2); four psychology laboratories; one psychology seminar; and one Directed Study or Honors Research, from 19.290 to 19.299.

Language and Cognition: 19.151, Bilingualism; 19.152, Introduction to Phonetics; 30.120, Introduction to Linguistics (note 4); three psychology electives (note 2); 19.195, Laboratory in Psycholinguistics; 19.290, Directed Study in Language and Cognition; two additional psychology laboratories; 19.271, Seminar in Cognition or 19.272, Seminar in the Psychology of Language; and one Directed Study or Honors Research, from 19.291 to 19.299.

Learning and Behavior Analysis: 19.168, Behavior Change in Institutions; 19.169, Learning and Motivation II; one of the PSI Teaching Practica, 19.250-19.268 (even numbered); one of the Advanced PSI Teaching Practica, 19.251-19.269 (odd numbered); two psychology electives (note 2); 19.165, Learning and Motivation Laboratory; 19.171, Behavior Modification Laboratory; two additional psychology laboratories; one seminar, either 19.166, Introduction to Programmed Learning, 19.270, Seminar in Behavior Theory, or 19.276, Seminar in Behavior Modification; and one Directed Study or Honors Research, from 19.290 to 19.299 (note 5).

Personality and Social Psychology: 19.130, Social Psychology or 19.135, Personality I (note 3); 19.136, Personality II; 19.186, Comparative Psychology and Ethology; 21.107, Social Psychology (note 4); two additional courses, either 20.151, Aggression (note 4); 20.160; Sex, Sex Roles, and Family (note 4), 21.151, Sociology of Prejudice (note 4), or 29.115, Theories of Persuasion (note 4); 19.133, Laboratory in Social Psychology or 19.138, Laboratory in Personality; three additional laboratories; one seminar, either 19.275, Seminar in Social Psychology, 19.273, Seminar in Clinical Psychology and Personality, or 21.107, Seminar in Social Psychology (note 4); and one Directed Study or Honors Research, from 19.290 to 19.299 (note 5).

Sensory and Neuropsychology: 19.149, Sensation or 19.150, Perception (note 3); 19.179, Physiological Bases of Psychology II; 19.180, Neuropsychology; 19.183, Biological Bases of Motivation or 19.186, Comparative Psychology and Ethology; two psychology electives; 19.162, Sensation and Perception Laboratory; 19.181, Laboratory in Physiological Psychology; two additional psychology laboratories; 19.274, Seminar in Sensory and Physiological psychology; and one Directed Study or Honors Research, from 19.290 to 19.299 (note 5).

Minor in Psychology

General Requirements: 19.105, Foundations of Psychology I; 19.106, Foundations of Psychology II; 19.120, Statistics in Behavioral Science I; and 19.121, Statistics in Behavioral Science II.

Students choose either General Psychology or one of four areas of concentration: Language and Cognition; Learning and Behavior Analysis; Personality and Social Psychology; or Sensory and Neuropsychology.

The additional courses required for each concentration follow:

General Psychology: 19.130, Social Psychology I or 19.135, Personality; 19.149, Sensation or 19.150, Perception; 19.155, Language and Cognition; 19.164, Learning and Motivation I; 19.178, Physiological Bases of Psychology I; and one psychology laboratory.

Language and Cognition: 19.155, Language and Cognition; 19.196, American Sign Language I; 19.151, Bilingualism; 19.152, Introduction to Phonetics; 19.156, Thought Processes in Children or 19.157, Cognition; and 19.195, Laboratory in Psycholinguistics.

Learning and Behavior Analysis: 19.141, Human Behavioral Development I; 19.164, Learning and Motivation I; 19.149, Sensation; 19.168, Behavior Change in Institutions; one of the PSI Teaching Practica, 19.250-19.268 (even numbered); and 19.165, Learning and Motivation Laboratory.

Personality and Social Psychology: 19.130, Social Psychology; 19.135, Personality I; 19.136, Personality II; 19.202, Abnormal Psychology I; 19.203, Abnormal Psychology II; and 19.133, Laboratory in Social Psychology or 19.138, Laboratory in Personality.

Sensory and Neuropsychology: 19.149, Sensation; 19.150, Perception; 19.178, Physiological Bases of Psychology I; 19.179, Physiological Bases of Psychology II or 19.180, Neuropsychology; 19.183, Biological Bases of Motivation or 19.186, Comparative Psychology and Ethology; and 19.162, Sensation and Perception Laboratory or 19.181, Laboratory in Physiological Psychology.

Notes:

1. All freshman enrolled in the College of Arts and Sciences must complete two quarters of Freshman English, one quarter of a college-level mathematics course, and two additional quarters from each of the areas of Humanities, Social Sciences, and Science. Courses taken to fulfill the freshman requirements may also be credited toward the Arts and Sciences distribution requirements for B.A. majors, as well as to relevant psychology major or minor requirements.
2. Courses in the Topics In Psychology Series (TIPS) will not be considered psychology electives, but will be considered free electives.
3. Whichever of these two courses was *not* taken to fulfill the Basic Psychology Course requirement.
4. Credit for this course will be counted toward the psychology major only if the entire concentration is completed. If students change concentrations or decide to enroll in the General psychology program, this course will be considered a free elective.
5. Students should arrange, well in advance of registration, for Directed Study or Honors Research with a faculty member whose laboratory focuses on the concentration area. For assistance in selecting potential sponsors, consult your adviser early in the preceding quarter.

Sociology-Anthropology

Concentration in Sociology

Bachelor of Arts

Preparatory Requirements: 21.100, Introduction to Sociology and 20.100, Introduction to Anthropology. *Core Requirements:* 21.139, Introduction to Statistical Analysis; 21.240, 241, Research Methods I and II; 21.280, Classical Social Thought; 21.281, Current Social Thought; 21.270, Class, Power and Social Change (preferably in senior year). *Elective Requirements:* two intermediate courses (100 level); two advanced courses (200 level); one anthropology course beyond 20.100.

Six electives in the social sciences other than sociology-anthropology. Foreign language and distribution requirements.

Bachelor of Science

Preparatory Requirements: 21.100, Introduction to Sociology and 20.100, Introduction to Anthropology. *Core Requirements:* 21.239, Introduction to Statistical Analysis; 21.240, 241, Research Methods I and II; 21.280, Classical Social Thought; 21.281, Current Social Thought; 21.270, Class, Power and Social Change (preferably in senior year). *Elective Requirements:* two intermediate courses (100 level); two advanced courses (200 level); one anthropology course beyond 20.100.

Six electives in the social sciences other than sociology-anthropology. Approved six-course specialization.

Minor in Sociology

Requirements: 21.100, Introduction to Sociology; any two courses from among the following: 21.240, Research Methods I; 21.241, Research Methods II; 21.280, Classical Social Thought; 21.281, Current Social Thought; and any three-course specialization in sociology arranged between the student and adviser.

Concentration in Anthropology

Bachelor of Arts

Preparatory Requirements: 20.100, Introduction to Anthropology and 21.100, Introduction to Sociology. *Core Requirements:* at least three of the following: 20.130, Language and Culture; 20.135, Individual and Culture; 20.240, Human Origins; 20.160, Sex, Sex Roles and Family; 20.170, Culture in Transition; 20.210, Tribal Society and Cultures; 20.214, Peasant Society and Culture; 20.257, Myth and Religion. *Elective Requirements:* at least six additional anthropology courses; one sociology elective.

Six electives in the social sciences other than sociology-anthropology.
Foreign language and distribution requirements.

Bachelor of Science

Preparatory Requirements: 20.100, Introduction to Anthropology and 21.100, Introduction to Sociology. *Core Requirements:* at least three of the following: 20.130, Language and Culture; 20.135, Individual and Culture; 20.240, Human Origins; 20.160, Sex, Sex Roles and Family; 20.170, Culture in Transition; 20.210, Tribal Society and Cultures; 20.214, Peasant Society and Culture; 20.257, Myth and Religion. *Elective Requirements:* at least six additional anthropology courses; one sociology elective.

Six electives in the social sciences other than sociology-anthropology.
Approved five-course specialization.

Minor in Anthropology

Requirements: 20.100, Introduction to Social anthropology; 20.130, Language and Culture; 20.135, Individual and Culture; 20.160, Sex, Sex Roles and Family; and any two-course specialization in anthropology arranged between the student and adviser.

Speech Communication

Concentration in Group and Public Communication

Bachelor of Arts

Required Courses: 37.115, Introduction to Communication Skills; 37.131, Introduction to Communication Theory; 37.239, Argumentation and Debate or 37.238, Group Discussion; 37.230, Interpersonal Communication I; 37.236, Theories of Persuasion or 37.240, Contemporary Public Address; eight speech communication electives, 22.110, Introduction to Politics or 22.111, Introduction to American Government; 19.106, Foundations of Psychology II or 21.100, Introduction to Sociology; 19.130, Social Psychology or 21.107, Social Psychology.

The College of Arts and Sciences foreign language and distribution requirements.

Bachelor of Science

Required Courses: 37.115, Introduction to Communication Skills; 37.131, Introduction to Communication Theory; 37.230, Interpersonal Communication I; 37.238, Group Discussion; 37.236, Theories of Persuasion; 37.237, Persuasive Techniques; 37.271, Introduction to Communication Research; six speech communication electives to be chosen from the following: 37.239, Argumentation and Debate; 37.116, Business and Professional Speaking; 37.150, The Mass and the Media; 37.240, Contemporary Public Address; 37.241, Theories of Audience Behavior; 37.270, Consultation Skills; 37.231, Interpersonal Communication II; 37.232, Female/Male Communication; 30.120, Introduction to Linguistics; 30.130, Introduction to Semantics; 26.150, Introduction to Logic; eight social science credits beyond the introductory level, selected in consultation with the student's adviser and based upon their value to the student's post-graduate activities.

College of Arts and Sciences distribution requirements; no language requirement.

Concentration in Personal Performance

Bachelor of Arts

Required Courses: 37.115, Introduction to Communication Skills; 37.110, Voice and Articulation; 37.111, Oral Interpretation; 37.116, Business and Professional Speaking; 37.239, Argumentation and Debate; 37.212, Advanced Vocal Techniques or 37.214, Advanced Oral Interpretation, 37.290, Directed Study, six speech communication electives.

College of Arts and Sciences distribution and foreign language requirements.

Bachelor of Science

Required Courses: 37.115, Introduction to Communication Skills; 37.131, Introduction to Communication Theory; 37.110, Voice and Articulation; 37.111, Oral Interpretation; 37.290, Directed Study; eight speech communication electives selected from the following: 37.239, Argumentation and Debate; 37.116, Business and Professional Speaking; 37.212, Advanced Vocal Techniques; 37.214, Advanced Oral Interpretation; 37.236, Theories of Persuasion; 37.237, Persuasive Techniques; 37.238, Group Discussion; 37.244, Communication in Education; 37.150, The Mass and the Media; 37.240, Contemporary Public Address; 37.241, Theories of Audience Behavior; 37.270, Consultation Skills; 37.230, Interpersonal Communication I; 37.231, Interpersonal Communication II; 37.232, Female/Male Communication; 37.271, Introduction to Communication Research; 30.120, Introduction to Linguistics; 30.130, Introduction to Semantics; 26.150, Introduction to Logic; in addition, the student must complete not less than four courses taught outside the Department, selected in consultation with his/her adviser on the basis of their value to the student's proposed post-graduate activities, and approved by the Speech Communication Curriculum Committee.

College of Arts and Sciences distribution requirements; no language requirement.

Boston-Bouvé College of Human Development Professions

Specimen Program in Physical Education

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
18.141	Bio. I	4	62.202	Life/Career Plan.*	3	10.104	Math.	4
30.113	Fresh. Writ.	4	18.142	Bio. II or	3	62.206	First Aid*	2
50.114	Soc. Sci.	4	12.106	Chem. or		65.131	Hlth. Issues	4
62.200	Hum. Movt.*	3	11.171	Physics	4	62.205	Grp. Dynamics*	3
62.13V	Gymnastics I	1	30.114	Intro. to Lit.	4	62.209	Hist./Phil. PE*	3
62.17J	Volleyball	1		Elective	4	62.16L	Track & Field	1
			62.13Y	Gymnastics II	1	62.12P	Rhythmics	1
			62.17C	Basketball	1			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
62.250	Anat.-Physiology I*	4	62.253	Kinesiology I*	4
50.121	Hum. Devel. I	4	50.131	Hum. Devel. II	4
62.216	Elem. School Act.	3	62.220	Motor Devel.*	4
	Elective	4		Elective	4
62.10B	Swimming	1	62.14C	Tennis	1
	Skill Elective	1		Skill Elective	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
62.263	Kinesiology II	4	62.251	Anat.-Physiology II*	4
50.142	Ed. Stat.	4	62.222	Motor Learn.*	4
19.149,	Psych. Elective		62.260	Meas. and Eval.	4
or 105			62.217	Theory of Play or	
or 156			62.212	Theory of Coaching	2
or 157		4		TAC	2
62.275	Critical Teaching	3	62.16C	Condition. or	
	TAC	2	62.15A	Movt. Ed.	1
62.14A	Badminton	1		Skill Elective	1
	Skill Elective	1			

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
62.254	Exer. Physiology I*	4	62.280	Curriculum Devel.	3
62.255	Adapted PE I	4	62.256	Bas. Athletic Trng.	3
	Elective	4		Elective	4
	TAC	2		Elective	4
	TAC	2		Elective	2

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
62.282	Student Teaching	12	62.270	Admin.	4
				Elective	4
				Elective	4
				Elective	4

180 Q.H. = Minimum graduation requirement for Physical Education

185 Q.H. = Minimum graduation requirement for Athletic Training

Minimum of 20 Q.H. General Studies Electives

Minimum of 10 Q.H. Boston-Bouvé College of Human Development Professions

Electives

For an area of concentration or option within the Physical Education Dept. other courses will be required as replacements for some courses listed above. Those Physical Education courses required of everyone are (*) regardless of concentration.

Specimen Program in Sport Communication (Nonteaching)

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
18.141	Bio. I	4	62.202	Life/Career Plan.	3	10.104	Math.	4
30.113	Fresh. Writ.	4	18.142	Bio. II or		62.206	First Aid	2
50.114	Soc. Sci.	4	12.106	Chem. or		65.131	Current Iss. Hlth.	4
62.200	Hum. Movt.	3	11.171	Physics	4	62.205	Grp. Dynamics	3
62.13V	Gymnastics I	1	30.114	Intro. Lit.	4	62.209	Hist./Phil. PE	3
62.17J	Volleyball	1		Elective	4	62.16L	Track & Field	1
			62.17C	Basketball	1	62.12P	Rhythmics	1
			62.13WX	Gymnastics II	1			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
62.250	Anat.-Physiology I	4	62.253	Kinesiology I	4
50.121	Hum. Devel. I	4	50.131	Hum. Devel. II	4
38.103	Fund. Newswrit.	4	62.220	Motor Devel.	4
37.236	Theories Persuasion	4	38.104	Fund. Newswrit.	4
62.	Team Skill Elective	1	62.	Ind. or Dual Skill Elective	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
62.263	Kinesiology II	4	62.251	Anat.-Physiology II	4
50.142	Ed. Stat.	4	62.222	Motor Learn.	4
19.149,	150, 156, 157, or 165 or		38.106	Techniq. Journal.	4
19.164	Psych. Elective	4		Elective	4
38.105	Techniq. Journal.	4			

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
62.254	Exer. Physiology	4		Comm. Elective	4
62.255	Adapted PE I	4		Electives	6
	Elective	4	62.256	Basic Athletic Trng.	3
	Elective	4	62.217	Theory of Play	2
62.	Coach/Officiate Elective	2	62.212	Theory of Coaching	2

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
62.281	Practicum	12	62.270	Admin. of PE	4
			62.204	Psych. of Sport	2
			62.206	Soc. of Sport	2
				Elective	4
				Elective	4

180 Q.H. = Minimum graduation requirement for Physical Education Sport Communication

20 Q.H. = General Studies Elective

10 Q.H. = Boston-Bouvé College of Human Development Professions

Note: Preregistration is essential for courses outside of the Physical Education Department.

Specimen Program in Physical Education/Cardiovascular Health and Exercise Specialist (Nonteaching Certification)

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
18.141	Bio. I	4	62.202	Life/Career Plan.	3	10.104	Math.	4
30.113	Fresh Writ.	4	18.142	Bio. II	4	62.206	First Aid	2
50.114	Soc. Sci.	4	30.114	Intro. Lit.	4	65.131	Current Iss. Hlth.	4
62.200	Hum. Movt.	3		Elective	4	62.203	Grp. Dynamics	3
62.13V	Gymnastics I	1	62.13W/X	Gymnastics II	1	62.210	Hist./Phil. PE	3
62.17J	Volleyball	1	62.17C	Basketball	1	62.16L	Track & Field	1
						62.12P	Rhythmics	1

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
62.250	Anat.-Physiology I	4	62.253	Kinesiology I	4
50.121	Hum. Devel. I	4	50.131	Hum. Devel. II	4
62.256	Bas. Athletic Trng.	3	62.220	Motor Devel.	4
12.106	Chem. I	4	12.107	Chem. II	4
62.10B	Swimming	1	62.14C	Tennis	1
	Skill Elective	1		Skill Elective	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
62.263	Kinesiology II	4	62.251	Anat.-Physiology II	4
50.142	Ed. Stat.	4	62.222	Motor Learn.	4
19.149, 156, 157 or 105 or			62.260	Meas. & Eval.	4
19.164	Psych. Elective	4	62.16C	Phys. Condition.	4
65.218	Pub. Hlth.	4		Skill Elective	1
62.248	Clin. Athletic Trng.	2			
62.14A	Badminton	1			

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
62.254	Exer. Physiology	4	62.259	Exer. Testing/Presc.	3
63.260	Admin. Rec. and Parks	4	62.865	Electrocardiography	2
63.262	Budg. Syst.	4	65.116	Nutrition	4
62.257	Adv. Athletic Trng.	4	53.804	Couns. Theory and Process	4
	Skill Elective	1		Skill Electives	2
	Skill Elective	1			

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
62.261	Super. Field Experience	12	62.293	Spec. Prog. Elective	4
			86.227	Cardiopul. Dis.	4
			62.235	Health Couns.	4

Specimen Program in Physical Education/Athletic Training Emphasis

First Year

Quarter 1			Quarter 2		
No.	Course	Q.H.	No.	Course	Q.H.
18.141	Bio. I	4	18.142	Bio. II or	
30.113	Fresh Writ.	4	12.106	Chem. or	
50.114	Soc. Sci.	4	11.171	Physics	4
62.200	Hum. Movt.	3	30.114	Intro. Lit.	4
62.13V	Gymnastics I	1	62.202	Life/Career Plan.	3
62.17J	Volleyball	1		Elective	4
			62.13WX	Gymnastics II	1
			62.17C	Basketball	1

Second Year

Quarter 3		
No.	Course	Q.H.
10.104	Math.	4
62.206	First Aid	2
65.131	Current Iss. Hlth.	4
62.210	Hist./Phil. PE	3
62.205	Grp. Dynamics	3
	Skill Electives	2

Second Year (Co-op starts)

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
62.250	Anat.-Physiology I	4	62.253	Kinesiology I	4
50.121	Hum. Devel. I	4	50.131	Hum. Devel. II	4
62.256	Bas. Athletic Trng. Elective (Chem./	3	62.221	Motor Devel. Elective	4
	Physics/Bio. II)	4	62.14C	Tennis	1
62.10B	Swimming	1		Skill Elective	1
	Skill Elective	1			

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
62.263	Kinesiology II	4	62.251	Anat.-Physiology II	4
50.142	Ed. Stat.	4	62.222	Motor Learn.	4
	Elective	4	62.260	Meas. & Eval.	4
62.275	Critical Teaching	3	62.217	Theory of Play or	
62.248	Clin. Athletic Trng.	2	62.212	Theory of Coaching	2
				TAC	2
			62.16C	Phys. Condition	1
				Skill Elective	1

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
62.254	Exer. Physiology	4	62.280	Curriculum Devel.	3
62.255	Adapted PE I	4	65.116	Nutrition	4
62.257	Adv. Athletic Trng. Elective	4		Elective	4
	TAC	2	62.278	Grp. Dynamics II or	
			62.279	Grp. Dynamics III or	
				TAC	2
				Elective	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
62.282	Super. Student Teaching	12	62.270	Admin. of PE	4
	Athletic Trng./			Elective	4
	Experience			Elective	4

180 Q.H. = Minimum graduation requirement for Physical Education

185 Q.H. = Minimum graduation requirement for Athletic Training

20 Q.H. = General Studies Electives

10 Q.H. = Boston-Bouve College of Human Development Professions

Specimen Program in Health Education

First Year

Quarter 1					Quarter 2					Quarter 3				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
12.111	Gen. Chem.	3	3	4	12.112	Gen. Chem.	3	3	4	10.104	Fund. Meth.	4		4
30.113	Fresh. Writ.	4		4	18.141	Bas. Ani. Blo.I	3	3	4	18.142	Bas. Ani. Blo.	3	4	4
50.114	Ed. & Soc. Sci.	4		4		Ed. Soc.				30.114	Intro. Lit.	4		4
65.131	Current Iss.					Elective			4	65.234	Hlth.Problems	4		4
	Hlth.	4		4	65.110	Fnd. Hlth. Ed.	2		2		PE Elective			2
65.208	First Aid	2	1	2	65.180	Instrct. Res.	2		2					
	PE Elective			1	65.209	Intro. Safety	2		2					

Second Year

Quarter 4					Quarter 5				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
19.105	Psych. I	4		4	19.106	Psych. II	4		4
50.121	Hum. Devel. I	4		4	50.131	Human Devel. II	4		4
62.250	Anat.-Phys.	3	2	4	62.251	Anat.-Phys.	3	2	4
	Gen. Stud.				65.116	Nutrition	4		4
	Elective	4		4					

Third Year

Quarter 6					Quarter 7			
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	Q.H.
18.120	Microbio.	3	4	4	50.141	Meas. & Eval.	4	4
20.100	Soc. Anthro.	4		4	65.222	Drug Use/Abuse	4	4
65.114	Mental Hlth.	4		4	65.225	Comm./Degen.		
	Require. Elect.	4		4		Diseases	4	4
						Gen. Stud.		
						Elective	4	4

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
58.120	Intro. Spec. Ed.	4	4	65.140	Logvty. & Aging	4	4
65.217	Teach. Proced.	4	4	65.219	Comm. Hlth.	4	4
65.223	Hum. Sexuality	4	4	65.238	Seminar	2	2
	Gen. Stud.				Gen.Stud.		
	Elective	4	4		Elective	8	8
					Fnd. Ed. Elective	4	4

Fifth Year

Quarter 10

Quarter 11

No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
65.240	Student Teach. or		12	65.233	Org./Admin. Hlth. Ed.	4	4
65.241	Field Exp.		12	65.235	Health Counseling Seminar	4	4
				65.239	Fnd. Ed. Elective	2	2
						4	4

Specimen Program in Physical Therapy

First Year

Quarter 1

Quarter 2

Quarter 3

No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
19.105	Fnd. of Psych. I	4	4	10.105	Fund. Math.	4	4	12.107	Gen. Chem.	4(3)	5
10.104	Fund. Math.	4	4	12.106	Gen. Chem.	4(3)	5	18.142	Bas. Ani. Bio.	3(4)	4
18.141	Bas. Ani. Bio.	3(4)	4	30.113	Fresh. Writ.	4	4	30.114	Intro. Lit.	4	4
62.206	First Aid	2	2	64.114	Intro. to Physl. Thrpy. I	1(2)	2				
	PE Elective	4	4	62.206	First Aid	2	2				

Second Year

Quarter 4

Quarter 5

No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
11.171	Bas. Physics	4	4	64.115	Intro. to Physl. Thrpy. II	1(2)	2
11.173	Physics Lab I	(3)	1	11.172	Bas. Physics II	4	4
18.143	Hum. Physiology I	3(3)	4	18.144	Hum. Physiology II	3(3)	4
62.221	Percep. Motor Learn & Devel. Elective	3 4	3 4	18.148	Hum. Anat.	3(3)	4
				19.106	Fnd. of Psych. II	4	4

Third Year

Quarter 6

Quarter 7

No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
64.123	Clin. Gross Anat.	4(5)	6	64.130	Clin. Kinesiology	2(4)	4
64.125	Physiol. for Physl. Thrpy.	2(2)	2	64.142	Physl. Thrpy. II	1(4)	3
64.141	Physl. Thrpy. I	1(2)	2	64.143	Physl. Thrpy. III	3(2)	4
64.234	Clin. Psychiatry	3	3	64.229	Clin. Medicine II	3	3
64.257	Clin. Medicine I	4	4				

Fourth Year

Quarter 8

Quarter 9

No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
64.156	Physl. Thrpy. IV	2(2)	3	64.189	Physl. Thrpy. VII	1(2)	2
64.251	Neuroanat.	3(2.5)	4	64.184	Super. Clin. Educ.	4	5
64.149	Clin. Seminar	2	2	64.171	Physl. Thrpy. VI	1(2)	2
64.258	Physl. Thrpy. V	2(4)	4	64.148	Physl. Thrpy. V cont.	½(1)	1
				64.255	Clin. Medicine III	3	3

Fifth Year

Quarter 10

Quarter 10A

Quarter 11

No.	Course	Cl.	Q.H.	No.	Course	Q.H.	No.	Course	Cl.	Q.H.
64.176	Admin.	3	3	64.194	Super. Clin. Ed.		64.173	Physl. Thrpy. In Hlth. Care Syst.	3	3
64.167	Research Design	3(2)	4				64.182	Psychosoc. Asp. of Illness	3	3
64.178	Physl. Thrpy. VIII	1(2)	2				64.239	Invest. Stud. - Elective	4(4)	6
	Elective	4	4						4	4
	Elective	4	4							

Specimen Program in Recreation and Lelsure Studies

First Year

Quarter 1				Quarter 2			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
37.106	Fund. of Speech.	3	3	30.114	Intro. Lit	4	4
30.113	Fresh. Writ.	4	4	18.141	Anl. Blo. I	4(3)	4
50.114	Ed. & Soc. Sci.	4	4	50.	Soc. Sci. Elec.	4	4
63.139	Life/Career Plan.	4	4	63.161	Found Lead.		
					Lels. Serv.	4	4
63.124	Camp Leadership		2				

Quarter 3

No.	Course	Cl.	Q.H.
65.131	Issues in Health	4	4
18.142	Anl. Blo. II	4(3)	4
50.	Soc. Sci. Elect.	4	
63.	Prof. Skill Cluster	4	4

Second Year

Quarter 4					Quarter 5				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
50.121	Hum. Devel. I	4			50.131	Hum. Devel. II	4		4
62.250	Anat. & Physio. I	3	2	4	62.251	Anat. & Physio. II	3	2	4
16.	Earth Sci. Elec.	4		4	16.	Earth Sci. Elec.	4		4
63.148	Intro. to Rec. & Lels.	3		3	63.	Prof. Skill Cluster			4

Third Year

Quarter 6				Quarter 7			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
63.285	Intro. to Research	4	4	63.290	Research Seminar	4	4
63.	Area of Concentration Course	4	4	63.165	Prog. Planning	4	4
63.	Dept. Elective	4	4	63.	Area of Concentration Course	4	4
	Guided Elective	3	4	63.	Guided Elective		4

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
63.250	Grp. Dynamics	3	3	63.280	Intern. Rec. & Lels. Serv.		16
63.279	Intern. Seminar	1	1				
63.	Area of Concen. Course	4	4				
63.	Area of Concen. Course	4	4				

Fifth Year

Quarter 10				Quarter 11			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
63.	Area of Concen. Course	4	4	63.299	Sr. Seminar in Cont. Issues	4	4
63.	Dept. Elective	3	4	63.	Area of Concen. Course	4	4
	Guided Elective		4		Guided Elective		4
	Guided Elective		4		Guided Elective		4

Department of Recreation and Leisure Studies

Areas of Concentration Required Courses

Quarter Offered

1. Therapeutic Recreation

63.249 Process of Aging	6-8-10
63.162 Overview of Physical Disabilities	6-8-10
63.153 Social and Psychological Impacts of Disabilities	8-10
63.169 Program Planning in Therapeutic Recreation	8-10
63.156 Foundations of Psychological Services in Therapeutic Recreation	10-11

 Plus thirteen quarter hours of guided department electives
2. Recreation Management

63.168 Budget Analysis	6-8-10
63.174 Elements of Outdoor Recreation Planning	6-8-10
63.260 Administration of Recreation and Parks	6-8-10
63.264 Program Evaluation	7-11

 Plus sixteen quarter hours of guided department electives
3. Outdoor Recreation/Environment Education

63.128 Survey of Facilities	7-11
63.170 Interpretations of Economic & Social History	6-8-10
63.171 Environmental Education	7-8-11
63.172 Seminar on Environmental Issues and Legislation	6-8-10
63.174 Elements of Outdoor Recreation Planning	6-8-10

 Plus thirteen quarter hours of guided department electives

Specimen Programs in Education

General Requirements:

Students majoring in Education must complete the following requirements to earn a Bachelor of Science degree in Education:

1. Distribution requirements with a minimum of sixteen quarter hours in each one of these areas: humanities, mathematics/sciences, and social sciences.

2. Major course requirements as listed on pages 26-32. (In addition to those courses required of all Elementary Education majors, students in this major must take designated courses in one area of emphasis chosen from the following: humanities, early childhood education, social sciences, mathematics/sciences, language/reading, and special education.)

3. Designated electives which are offered by the College of Arts and Sciences, and the Boston-Bouve College of Human Development Professions. These electives are in the areas of English, history, drama/speech, political science, economics, earth science, and the foundations of education, depending upon the particular program of study.

There is no language requirement.

As early as possible students should discuss their curriculum questions and academic needs with a representative of the Dean's office or a faculty adviser.

Specimen Program in Elementary Education

- | | |
|------------------|--|
| Quarter 1 | 30.113, Freshman Writing; 50.114, Education and Social Science; designated electives. |
| Quarter 2 | 23.101, Western Civilization I; designated electives. |
| Quarter 3 | 23.102, Western Civilization II; 30.114, Introduction to Literature; designated electives. |
| Quarter 4 | 56.120, Introduction to Special Education; 50.121, Human Development and Learning I; 39.115, Principles and Problems of Economics; designated electives. |
| Quarter 5 | Designated electives. |
| Quarter 6 | 51.131, Fundamentals of Arithmetic I; 51.133, Fundamentals of Reading I; 51.135, Analysis of Teaching and Educational Process; designated elective. |

Quarter 7	51.132, Fundamentals of Arithmetic II; 51.134, Fundamentals of Reading II; designated electives.
Quarter 8	51.141, Elementary Education Compendium I; 90.253, Professional Development for Teachers; designated electives.
Quarter 9	50.141, Measurement and Evaluation; 51.142, Elementary Education Compendium II; designated electives.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of Biology

Quarter 1	12.106, General Chemistry; 18.131, General Biology; 50.114, Education and Social Science; designated electives.
Quarter 2	18.132, Animal Biology; 30.113, Freshman Writing; designated electives.
Quarter 3	12.119, General Chemistry; 30.114 Introduction to Literature; designated electives.
Quarter 4	50.131, Human Development and Learning II; 12.144, Organic Chemistry; 18.133, Plant Biology; designated elective.
Quarter 5	18.134, Environmental and Population Biology; designated electives.
Quarter 6	11.171, Physics for Life Sciences I; 18.135, Genetics and Development Biology; 51.135, Analysis of Teaching and Educational Process; designated elective.
Quarter 7	11.172, Physics for Life Sciences II; 18.136, Cell Physiology and Biochemistry; designated electives.
Quarter 8	51.147, Methods and Materials of Teaching the Sciences; 90.253, Professional Development for Teachers; designated electives.
Quarter 9	50.141, Measurement and Evaluation; designated electives.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of Chemistry

Quarter 1	10.150, Calculus; 12.127, General Chemistry; 50.114, Education and Social Science; 18.131, General Biology.
Quarter 2	10.151, Calculus; 12.128, General Chemistry; 18.132, Animal Biology; 30.113, Freshman Writing.
Quarter 3	10.152, Calculus; 12.129, The Chemical Elements; 30.114, Introduction to Literature; designated electives.
Quarter 4	11.117, Physics for Science Majors; 11.147, Physics Laboratory; 12.153, Organic Chemistry; 50.131, Human Development and Learning II; designated elective.
Quarter 5	11.119, Physics for Science Majors; 11.148, Physics Laboratory; 12.154, Organic Chemistry; designated electives.
Quarter 6	12.161, Physical Chemistry; 51.135, Analysis of Teaching and Educational Process; designated electives.
Quarter 8	12.168, Physical Chemistry; 12.171, Analytical Chemistry; 51.147, Methods and Materials of Teaching the Sciences; 90.253, Professional Development for Teachers; designated elective.
Quarter 9	12.213, Inorganic Chemistry; 50.141, Measurement and Evaluation; designated electives.
Quarter 10	12.179, Instrumental Analysis; designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of Earth Science

Quarter 1	12.106, General Chemistry; 18.131, General Biology; 50.114, Education and Social Science; designated electives.
Quarter 2	18.132, Animal Biology; 30.113, Freshman Writing; designated electives.
Quarter 3	12.107, General Chemistry; 30.114, Introduction to Literature; designated electives.
Quarter 4	11.171, Physics for Life Sciences I; 16.201, Physical Geology; 16.203, Physical Geology Laboratory; 50.131, Human Development and Learning II; designated elective.
Quarter 5	11.172, Physics for Life Sciences II; 16.202, Historical Geology; 16.204, Historical Geology Laboratory; designated electives.
Quarter 6	51.135, Analysis of Teaching and Educational Process; designated electives.
Quarter 7	Designated electives.
Quarter 8	51.147, Methods and Materials of Teaching the Sciences; 90.253, Professional Development for Teachers; designated electives.
Quarter 9	50.141, Measurement and Evaluation; designated electives.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of English

Quarter 1	30.113, Freshman Writing; 50.114, Education and Social Science; designated electives.
Quarter 2	23.101, Western Civilization I; designated electives.
Quarter 3	23.102, Western Civilization II; 30.114, Introduction to Literature; designated electives.
Quarter 4	30.110, Poetry; 50.131, Human Development and Learning II; designated electives.
Quarter 5	One course in major American novels or drama literature; designated electives.
Quarter 6	26.150, Introduction to Logic; 30.120, Introduction to Linguistics or 30.130, Introduction to Semantics; 51.135, Analysis of Teaching and Educational Process; designated electives.
Quarter 7	Designated electives.
Quarter 8	30.250, Shakespeare's Comedies; 50.141, Measurement and Evaluation; 51.143, Methods and Materials of Teaching English; 90.253, Professional Development for Teachers; designated elective.
Quarter 9	30.251, Shakespeare's Tragedies; 51.139, Writing and the Teaching of Writing; 51.126, Teaching of Reading in Secondary Schools; 50.141, Measurement and Evaluation.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of General Science

Quarter 1	12.106, General Chemistry; 18.131, General Biology; 50.114, Education and Social Science; designated electives.
Quarter 2	18.132, Animal Biology; 30.113, Freshman Writing; designated electives.
Quarter 3	12.119, General Chemistry; 30.114, Introduction to Literature; designated electives.
Quarter 4	11.171 Physics for Life Sciences I; 12.144, Organic Chemistry; 50.131, Human Development and Learning II; designated elective.

Quarter 5	11.172, Physics for Life Sciences II; designated electives.
Quarter 6	16.201, Physical Geology; 16.203, Physical Geology Laboratory; 51.135, Analysis of Teaching and Educational Process; designated electives.
Quarter 7	16.161, Observational Astronomy; designated electives.
Quarter 8	51.147, Methods and Materials of Teaching the Sciences; 90.253, Professional Development for Teachers; designated electives.
Quarter 9	50.141, Measurement and Evaluation; designated electives.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of Mathematics

Quarter 1	10.181, Calculus I; 11.117; Physics for Science Majors I; 30.113, Freshman Writing; 50.114, Education and Social Science.
Quarter 2	10.182, Calculus II; 11.118, Physics for Science Majors II; 23.102, Western Civilization; designated elective.
Quarter 3	10.183, Calculus III; 11.119, Physics for Science Majors III; 30.114, Introduction to Literature; designated elective.
Quarter 4	10.184, Calculus and Linear Methods I; 93.110, Programming Computers with FORTRAN; 26.151, Symbolic Logic; 50.131, Human Development and Learning II.
Quarter 5	10.185, Calculus and Linear Methods II or 10.154, Calculus; designated electives.
Quarter 6	51.135, Analysis of Teaching and Educational Process; designated electives.
Quarter 7	Designated electives.
Quarter 8	51.145, Methods and Materials of Teaching Mathematics; 90.253, Professional Development for Teachers; designated electives.
Quarter 9	51.124, Modern Mathematics Curricula; 50.141, Measurement and Evaluation; designated electives.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of Modern Languages

Quarter 1	30.113, Freshman Writing; 50.114, Education and Social Science; designated electives.
Quarter 2	23.101, Western Civilization I; designated electives.
Quarter 3	23.102, Western Civilization II; 30.114, Introduction to Literature; designated electives.
Quarter 4	30.170, Survey of English Literature I; 50.131, Human Development and Learning II; designated electives.
Quarter 5	Designated electives.
Quarter 6	51.135, Analysis of Teaching and Educational Process; designated electives.
Quarter 7	Designated electives.
Quarter 8	51.140, Methods and Materials of Teaching Modern Languages I; 90.253, Professional Development for Teachers; designated electives.
Quarter 9	51.144, Methods and Materials of Teaching Modern Languages II; 50.141, Measurement and Evaluation; designated electives.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of Music

Quarter 1	28.133, Music Fundamentals; 30.113, Freshman Writing, 50.114, Education and Social Science; designated elective.
Quarter 2	28.106, Music Theory I; 30.114, Introduction to Literature; 28.240, Keyboard I; designated elective.
Quarter 3	28.107, Music Theory II; 28.241, Keyboard II; designated electives.
Quarter 4	28.270, Strings I; 28.132, Music Theory III; 50.121, Human Development I; designated elective.
Quarter 5	28.271, Strings II; music history/literature elective; 11.109, Physics in Music; 50.131, Human Development II.
Quarter 6	28.272, Woodwinds I; 28.278, Organization of Instrumental Programs; 51.135, Analysis of Teaching; designated elective.
Quarter 7	28.273, Woodwinds II; 28.277, Voice; 51.127, Teaching Music in Elementary Schools; designated elective.
Quarter 8	28.274, Brass I; 51.128, Teaching Music in Secondary Schools I; 90.253, Professional Development; two designated electives.
Quarter 9	28.275, Brass II; 51.129, Teaching Music in Secondary Schools II; 50.141, Measurement and Evaluation; designated elective.
Quarter 10	28.276, Percussion; designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of Physics

Quarter 1	10.181, Calculus I; 11.117, Physics for Science Majors I; 30.113, Freshman Writing; 50.114, Education and Social Science.
Quarter 2	10.182, Calculus II; 11.118, Physics for Science Majors II; 23.102, Western Civilization; designated elective.
Quarter 3	10.183, Calculus III; 11.119, Physics for Science Majors III; 30.114, Introduction to Literature; designated elective.
Quarter 4	10.184, Calculus and Linear Methods I; 11.127, Intermediate Mechanics; 11.147, Physics Laboratory; 50.131, Human Development and Learning II; designated elective.
Quarter 5	10.185, Calculus and Linear Methods II; 11.128, Electric and Magnetic Fields; 11.148, Physics Laboratory; designated electives.
Quarter 6	10.250, Analysis II or 10.221, Applied Analysis; 11.200, Classical Mechanics; 11.260, Wave Laboratory; 51.135, Analysis of Teaching and Educational Process.
Quarter 7	10.251, Analysis II or 10.221, Applied Analysis; designated electives.
Quarter 8	12.106, General Chemistry or 12.114, General Chemistry; 51.147, Methods and Materials of Teaching the Sciences; 90.253, Professional Development for Teachers; designated elective.
Quarter 9	12.115, General Chemistry; 50.141, Measurement and Evaluation; designated electives.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Teaching of Social Studies

Quarter 1	30.113, Freshman Writing; 50.114, Education and Social Science; designated electives.
Quarter 2	23.101, Western Civilization I; designated electives.
Quarter 3	23.102, Western Civilization II; 30.114, Introduction to Literature; designated electives.

Quarter 4	23.210, U.S. to 1877; 26.150, Introduction to Logic; 39.115, Principles and Problems of Economics; 50.131, Human Development and Learning II.
Quarter 5	23.211, U.S. Since 1877; 39.116, Principles and Problems of Economics; designated electives.
Quarter 6	23.199, The Historian's Craft; 51.135, Analysis of Teaching and Educational Process; designated electives.
Quarter 7	39.280, Comparative Economics; designated electives.
Quarter 8	51.149, Methods and Materials of Teaching Social Studies; 90.253, Professional Development for Teachers; designated elective.
Quarter 9	51.126, Teaching Reading in Secondary Schools; 50.141, Measurement and Evaluation; designated electives.
Quarter 10	Designated electives.
Quarter 10A	51.151, Student Teaching and Seminar.
Quarter 11	Designated electives.

Specimen Program in Speech and Hearing

Quarter 1	30.113, Freshman Writing; 50.114, Education and Social Science; 18.116, The Human Organism; designated electives.
Quarter 2	30.114, Introduction to Literature; 55.159, Basic Manual Communication; designated electives.
Quarter 3	55.122, Introduction to Speech and Hearing, designated elective.
Quarter 4	50.142, Introduction to Educational Statistics; 56.120, Introduction to Special Education; 55.125, Hearing Science; designated electives.
Quarter 5	50.121, Human Development and Learning I; 55.126, Anatomy of the Vocal Mechanism; designated electives.
Quarter 6	19.135, Personality I; 55.133, Phonetics and Developmental Phonology; 55.131, Developmental Semantics and Syntax; designated electives.
Quarter 7	19.136, Personality II; 55.141, Phonemic Disorders; 55.142, Introduction to Audiology; designated electives.
Quarter 8	51.133, Fundamentals of Reading I; 55.154, Fluency Disorders; 90.253, Professional Development; 55.123, Speech Science; designated elective.
Quarter 9	55.143, Diagnostic Techniques; 55.141, Orientation to Clinical Practices; 55.127, Introduction to Psychoacoustics; designated electives.
Quarter 10	19.202, Abnormal Psychology I; 55.128, Psychoacoustics Laboratory; designated electives.
Quarter 10A	55.155, Clinical Practice and Seminar.
Quarter 11	19.203, Abnormal Psychology II; designated electives.

Specimen Program in Human Services

Quarter 1	22.111, Introduction to American Government; 30.113, Freshman Writing; 50.114, Education and Social Science; designated elective.
Quarter 2	30.114, Introduction to Literature; 50.166, The Human Services Professions; 50.161, Seminar in Group Process; designated elective.
Quarter 3	39.116, Principles and Problems of Economics; designated electives.
Bachelor of Science	Prerequisite courses: 30.113, Freshman Writing; 30.114, Introduction to Literature; 50.121, Human Development I; 50.131, Human Development and Learning II; 50.114, Education and Social Science; 22.111, Introduction to American Government; 39.116, Principles and Problems of Economics; 50.166, Introduction to Human Service Professions; 50.142, Introduction to Educational Statistics.

Core Courses: Either 19.135, Personality I and 19.136, Personality II and 19.202, Abnormal Psychology or 19.135, Personality I and 19.202, Abnormal Psychology I and 19.203, Abnormal Psychology II; 50.167, Psychosocial Development; 50.161, Seminar in Group Process; 50.133,

Educational Applications of Social Psychology; 21.157, Sociology of Human Service Organizations; 56.150, Introduction to Rehabilitation; 56.951, Principles of Medical Rehabilitation; one of these: 21.145, Urban Society or 21.245, Community Analysis or 56.956, Community Planning in Rehabilitation; one of these: 56.958, Social Welfare and Rehabilitation or 21.125, Sociology of Private and Public Assistance or 21.221, Seminar in Social Welfare; 53.804, Counseling Theory and Process.

Approved four-course concentration; two supervised field placements.

Courses in the areas of drama/speech and education humanities.

Distribution requirements.

College of Business Administration

Specimen Program for First Three Quarters

The courses taken in the first three quarters are the same for all concentrations.

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
41.111	Acct. Prin. I	4	41.112	Acct. Prin. II	4	49.100	Intro. Bus.	4
10.119	Fund. of Math.	4	49.249	Intro. Quan.		30.114	Intro. Lit.	4
30.113	Fresh. Writ.	4		Math. in Bus.	4	39.106	Prin. of Econ.	
	Nonbus. Elective	4	39.105	Prin. of Econ.			(Micro)	4
				(Macro)	4		Nonbus. Elective	4
				Nonbus. Elective	4			

Accounting

Quarter 4 49.250, Business Statistics I; 49.205, Introduction to Data Processing, two arts and sciences electives.

Quarter 5 49.251, Business Statistics II; three arts and sciences electives.

Quarter 6 41.251, Intermediate Accounting I; 45.209, Organizational Behavior; 43.120, Introduction to Marketing; one arts and sciences elective.

Quarter 7 41.252, Intermediate Accounting II; 41.253, Cost Accounting I; 45.210, Complex Organizations; 44.120, Introduction to Finance.

Quarter 8 41.254, Cost Accounting II; 41.255, Intermediate Accounting III; arts and sciences elective; open elective.

Quarter 9 45.250, Business and Society; 41.262, Accounting Theory and Practice or 41.263, Accounting Planning and Control; 45.265, Operations Management; open elective.

Quarter 10 45.112, Business Policy; two open electives; elective.

Quarter 11 Two open electives; open elective; arts and sciences elective.

Entrepreneurship and New Venture Management

Quarter 4 49.250, Business Statistics I; 49.205, Introduction to Data Processing; two arts and sciences electives.

Quarter 5 49.251, Business Statistics II; three arts and sciences electives.

Quarter 6 45.209, Organizational Behavior; 45.212, New Venture Creation; 43.120, Introduction to Marketing; open elective.

Quarter 7 45.210, Complex Organizations; 44.120, Introduction to Finance; two open electives.

Quarter 8 45.130, Operations Analysis and Venture Capital; arts and sciences electives; open elective.

Quarter 9 44.159, Small Business Finance; 45.250, Business and Society; 45.265, Operations Management; open elective.

Quarter 10 45.112, Business Policy; 49.107, Small Business Management; arts and science elective, open elective.

Quarter 11 45.295, Small Business Institute Field Project; two open electives.

Finance and Insurance

Quarter 4	49.250, Business Statistics I; 49.205, Introduction to Data Processing; two arts and sciences electives.
Quarter 5	49.251, Business Statistics II; three arts and sciences electives.
Quarter 6	44.120, Introduction to Finance; 44.275, Money and Business Activity; 45.209, Organizational Behavior; arts and sciences elective.
Quarter 7	44.154, Managerial Finance; 43.120, Introduction to Marketing; 45.210, Complex Organizations; arts and sciences elective.
Quarter 8	44.181, Investment Management; finance elective; business elective; open elective.
Quarter 9	45.250, Business and Society; finance elective; 45.265, Operations Management; open elective.
Quarter 10	45.112, Business Policy; finance elective; two open electives.
Quarter 11	All open electives.

General Business Administration

Quarter 4	49.250, Business Statistics I; 49.205, Introduction to Data Processing; two arts and sciences electives.
Quarter 5	49.251, Business Statistics II; three arts and sciences electives.
Quarter 6	45.209, Organizational Behavior; 44.120, Introduction to Finance; business elective; open elective.
Quarter 7	45.210, Complex Organizations; 43.120, Introduction to Marketing; business elective; open elective.
Quarter 8	Arts and sciences elective; two business electives; open elective.
Quarter 9	45.250, Business and Society; arts and sciences elective; 45.265, Operations Management; open elective.
Quarter 10	45.112, Business Policy; arts and sciences elective; business elective; open elective.
Quarter 11	Business elective; three open electives.

Human Resources Management

Quarter 4	49.250, Business Statistics I; 49.205, Introduction to Data Processing; two arts and sciences electives.
Quarter 5	49.251, Business Statistics II; three arts and sciences electives.
Quarter 6	45.209, Organizational Behavior; 43.120, Introduction to Marketing; two open electives.
Quarter 7	45.210, Complex Organizations; 45.272, People and Productivity; 44.120, Introduction to Finance; open elective.
Quarter 8	45.273, Personnel Administration; 45.277, Reward Systems; arts and sciences elective; open elective.
Quarter 9	45.250, Business and Society; open elective; 45.265, Operations Management; Human Resources Management elective.
Quarter 10	45.274, Contemporary Labor Issues; Human Resources Management Elective; 45.112, Business Policy; arts and sciences elective.
Quarter 11	Arts and sciences elective; three open electives.

International Business Administration

Quarter 4	49.250, Business Statistics I; 49.205, Introduction to Data Processing; two arts and sciences electives.
Quarter 5	49.251, Business Statistics II; three arts and sciences electives.
Quarter 6	45.209, Organizational Behavior; 46.100, Introduction to International Business; 44.120, Introduction to Finance; open elective.

Quarter 7	45.210, Complex Organizations; 43.120, Introduction to Marketing; business elective; open elective.
Quarter 8	Liberal International elective; business elective; arts and sciences elective; open elective.
Quarter 9	45.250, Business and Society; 45.265, Operations Management; Business International elective; open elective.
Quarter 10	45.112, Business Policy; Arts and Sciences International elective; two open electives.
Quarter 11	46.101, Seminar in International Business; Business International elective; two open electives.

Note: A list of Arts and Sciences Electives which count towards the International Business Concentration and the scheduled offerings of the International Business Electives are available for program planning. Students should consult this list and the schedule of offerings.

Management

Quarter 4	49.250, Business Statistics I; 49.205, Introduction to Data Processing; two arts and sciences electives.
Quarter 5	49.251, Business Statistics II; three arts and sciences electives.
Quarter 6	45.209, Organizational Behavior; 44.120, Introduction to Finance; open elective; business elective.
Quarter 7	45.210, Complex Organizations; 45.272, People and Productivity; Human Resources Management; 41.205, Cost Accounting for Management; 43.120, Introduction to Marketing.
Quarter 8	49.155, Legal Aspects of Business; business elective; arts and sciences elective; open elective.
Quarter 9	45.250, Business and Society; 45.265, Operations Management; arts and sciences elective; open elective.
Quarter 10	45.112, Business Policy; arts and sciences elective; two open electives.
Quarter 11	Three open electives; business elective.

Marketing

Quarter 4	49.250, Business Statistics I; 49.205, Introduction to Data Processing; two arts and sciences electives.
Quarter 5	49.251, Business Statistics II; three arts and sciences electives.
Quarter 6	43.120, Introduction to Marketing; 45.209, Organizational Behavior; arts and sciences elective; open elective.
Quarter 7	43.252, Marketing Management; 45.210, Complex Organizations; 44.120, Introduction to Finance; open elective.
Quarter 8	43.240, Marketing Research; marketing elective; arts and sciences elective.
Quarter 9	45.250, Business and Society; marketing elective; 45.265, Operations Management; open elective.
Quarter 10	43.278, Competitive Strategy; 45.112, Business Policy; arts and sciences elective; open elective.
Quarter 11	Marketing elective; three open electives.

Transportation and Physical Distribution Management

Quarter 4	49.250, Business Statistics I; 49.205, Introduction to Data Processing; two arts and sciences electives.
Quarter 5	49.251, Business Statistics II; three arts and sciences electives.
Quarter 6	48.101, Principles of Transportation; 45.209, Organizational Behavior; 44.120, Introduction to Finance; open elective.

Quarter 7	45.210, Complex Organizations; 43.120, Introduction to Marketing; 48.104, Physical Distribution Management; open elective.
Quarter 8	Transportation elective; two arts and sciences electives; open elective.
Quarter 9	45.250, Business and Society; 48.102, Current Issues in Transportation Policy; 45.265, Operations Management; open elective.
Quarter 10	45.112, Business Policy; transportation elective; arts and sciences elective; open elective.
Quarter 11	48.120, Seminar in Transportation; three open electives.

College of Criminal Justice

Specimen Program in Criminal Justice

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
92.104	Admin. Crim. Just.	4	39.116	Prin./Prob. Econ.	4	21.100	Intro. Soc.	4
39.115	Prin./Prob. Econ.	4	22.111	Intro. Amer. Gov.	4	19.106	Fnd. Psych. II	4
22.110	Intro. Politics	4	30.113	Fresh. Writ.	4	30.114	Intro. Lit.	4
19.105	Fnd. Psych. I	4		Crim. Jus.			Crim. Jus.	
				Elective	4		Elective	4

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
22.141	State & Loc. Gov.	4		Math/Sci. Require.	4
92.141	Crim. Law	4		Non-Crim. Jus.	
92.137	Criminol.	4		Elective	4
	Math/Sci. Require.	4		Crim. Jus.	
				Elective	4
				Constnl. Prob.	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
	Crim. Jus. Elective	4		Crim. Jus. Elective	4
	Non-Crim. Jus.			Non-Crim. Jus.	
	Elective	4		Elective	4
	Non-Crim. Jus.			Non-Crim. Jus.	
	Elective	4		Elective	4
92.114	Crim. Jus.			History Req.	4
	Research	4			
	History Req.	4			

Fourth Year

Fifth Year

Quarters 8-11					
No.	Course	Q.H.	No.	Course	Q.H.
	Crim. Jus. Electives	24		Non-Crim. Jus. Electives	36

College of Engineering

Specimen Program In Chemical Engineering

All courses in Chemical Engineering must be taken in sequence shown.

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
10.150	Calculus I	4	10.151	Calculus II	4	10.152	Calculus III	4
11.203	Physics I	4	11.204	Physics II	4	11.205	Physics III	4
09.108	Comp. for Eng.	4	09.109	Eng. Graph. and Des.	4	12.115	Gen. Chem.	4
30.114	Intro. Lit.	4	12.114	Gen. Chem.	4	30.115	Gr. Th. Lit.	4

First year pattern of two-term courses may vary according to assigned section.

Quarters 4, 6, 8, and 10 offered Fall and Winter.

Quarters 5, 7, and 9 offered Spring and Summer.

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
10.153	Calculus IV	4	10.154	Calculus V	4
11.206	Physics IV	4	04.102	Chem. Eng. Cal. II	4
04.101	Chem. Eng. Cal. I	4	04.106	Poly. Sci. and Eng.	4
12.147	Organic Chem. I	4	12.148	Organic Chem. II	4
11.110	Physics Lab I	1	11.111	Physics Lab II	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
10.155	Math. Analysis I	4	10.156	Math. Analysis II	4
04.111	Chem. Eng. I	4	04.112	Chem. Eng. II	4
12.161	Phys. Chem. I	4	12.162	Phys. Chem. II	4
39.115	Economics I	4	39.116	Economics II	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
04.121	Trans. Phen. I	4	04.122	Trans. Phen. II	4
04.123	Exp. Methods I	4	04.124	Exp. Methods II	4
04.126	Chem. Eng. Therm.	4	04.136	Chem. Eng. Kinet.	4
	Soc. Sci./Hum. Elective	4		Soc. Sci./Hum. Elective	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
*04.131	Proc. Des. I	6	*04.132	Proc. Des. II	6
*04.133	Projects I	6	*04.134	Projects II	6
	Chem. Eng. Elective	4		Chem. Eng. Elective	4
	Chem. Eng. Elective	4		Chem. Eng. Elective	4
	Soc. Sci./Hum. Elective	4		Soc. Sci./Hum. Elective	4

Quarters 10 and 11 must be approved by departmental adviser.

Specimen Program in Civil Engineering

First Year

Quarter 1				Quarter 2				Quarter 3			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
09.108	Comp. for Eng.	3	4	09.109	Eng. Graph. and Des.	3	4	10.152	Calculus III	3	4
10.150	Calculus I	3	4					11.205	Physics III	3	4
11.203	Physics I	3	4	10.151	Calculus II	3	4	12.115	Gen. Chem.	3	4
30.114	Intro. Lit.	3	4	11.204	Physics II	3	4	30.115	Gr. Th. Lit.	3	4
				12.114	Gen. Chem.	3	4				

Second Year

Quarter 4				Quarter 5			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
11.110	Physics Lab I	0(3)	1	02.130	Therm. I	3	4
10.153	Calculus IV	3	4	11.111	Physics Lab II	0(3)	1
11.206	Physics IV	3	4	10.154	Calculus V	3	4
39.115	Economics I	3	4	39.116	Economics II	3	4
01.116	Eng. Meas.	3	4	01.140	Struct. Mech. I	3	4
01.117	Eng. Meas.	0(3)	2	01.116	Eng. Meas.	3	4
01.140	Struct. Mech. I	3	4	01.117	Eng. Meas. Lab	0(3)	2

01.116, 117 offered Fall and Summer quarters.
01.140 offered Winter and Spring quarters.

Third Year

Quarter 6				Quarter 7			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.155	Math. Anal. I	3	4	10.156	Math. Analysis II	3	4
02.116	Dynamics	3	4	01.180	Materials	3	4
01.141	Struct. Mech. II	3	4	01.120	Fluid Mech. I	3	4
	Soc. Sci./			37.109	Effect. Speaking	2	2
	Hum. Elec.	3	4	01.143	Struct. Analysis I	3	4

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
03.183	Elec. Eng. I	3	4	01.193	Environ. Eng. I	3	4
01.176	Soil Mech.	3	4	01.150	Concrete Des. I or	3	4
01.179	Soil Mech. Lab or	0(3)	2	01.178	Soil Mech.	3	4
01.150	Concrete Des. I	3	4	01.179	Soil Mech. Lab	(3)	2
	Tech. Elective	3	4		Tech. Elective		4
	Soc. Sci./				Soc. Sci. Hum.		
	Hum. Elec.				Elective		4

Fifth Year

Quarter 10				Quarter 11			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
01.160	Struct. Des.	3	4		Gen. Elective	3	4
	Soc. Sci./				Tech. Elective	3	4
	Hum. Elec.	3	4		Tech. Elective	3	4
	Tech. Elective	3	4		Tech Elective	3	4
	Tech. Elective	3	4				

Note: Quarters 8 and 9 One half class takes 01.150, the other 01.178 and 01.179 in Quarter 8. In Quarter 9 the sections are reversed.
Quarter 11 General Elective—this may be a technical or arts and sciences elective or any other course given at the University. The general elective may be interchanged with an arts and sciences elective in another quarter, with the approval of the Civil Engineering Department.

Technical Electives

Fall-Winter Quarters 8 & 10				Spring Quarters 9 & 11			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
01.101	Special Topics		4	01.101	Special Topics		4
01.102	Spec. Topics		4	01.102	Spec. Topics		4
*01.122	Hydraulic Eng.	3	4	01.105	C.V. Eng. Sys.	3	4
**01.142	Struct. Mech. III	3	4	01.135	Constr. Eng.	3	4
**01.152	Concrete Des. II	3	4	01.136	Highway Eng.	3	4
01.175	Geotechnology	3	4	**01.161	Struct. Des. II	3	4
*01.194	Environ. Eng. II	3	4	**01.174	Found. Eng.	3	4
*01.206	App. Probability	3	4	**01.195	Environ. Eng. III	3	4
**01.244	Struct. Analysis	3	4	*01.196	Environ. Des.	3	4
05.245	Bas. Eng.			01.207	Tech. Assess.	3	4
	Statistics	3	4	01.210	Legal Aspects	3	4
**05.260	Eng. Economy	3	4	01.234	Transp. Eng.	3	4
				*01.245	Struct. Analysis III	3	4
				*01.259	Air Pollution	3	4
				05.245	Eng. Statistics	3	4
				05.260	Eng. Economy	3	4

* Required for Environmental Option
** Recommended for Structures Option

Note: During the summer the Civil Engineering Department offers a limited number of technical electives. Students should check with the Department for specific information.
Note: Technical electives from other engineering departments may be elected with the approval of the Civil Engineering Department Curriculum Committee.

Specimen Program in Electrical Engineering

First Year

Quarter 1				Quarter 2				Quarter 3			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
09.108	Comp. for Eng.	4	4	09.109	Eng. Graph. and Des.	4	4	10.152	Calculus III	4	4
10.150	Calculus I	4	4					11.205	Physics III	4	4
11.203	Physics I	4	4	10.151	Calculus II	4	4	12.115	Gen. Chem.	4	4
30.114	Intro. Lit.	4	4	11.204	Physics II	4	4	30.115	Gr. Th. Lit.	4	4
				12.114	Gen. Chem.	4	4				

Second Year

Quarter 4				Quarter 5			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.153	Calculus IV	4	4	10.154	Calculus V	4	4
11.286	Physics	4	4	02.163	Mech.	4	4
03.111	Circ. and Sys. I	4	4	03.112	Circ. and Sys. II	4	4
	Soc. Sci./Hum. Elec.	4	4		Hum. Elective	4	4
11.110	Physics Lab	0(3)	1	11.111	Physics Lab	0(3)	1
03.151	Elec. Eng. Lab I-A	0(4)	1	03.152	Elec. Eng. Lab I-B	0(4)	1

Third Year

Quarter 6				Quarter 7			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.155	Math. Anal. I	4	4	10.156	Math Analysis II	4	4
03.113	Circ. and Sys. III	4	4	03.122	Circ. and Sys. IV	4	4
03.101	Discrete Sys.	4	4	03.141	Electronics I	4	4
02.130	Therm. I	4	4	03.154	Elec. Eng. Lab II-B	0(4)	1
03.153	Elec. Eng. Lab II-A	0(4)	1		Soc. Sci./Hum. Elective	4	4

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
03.142	Electronics II	4	4	03.144	Electronics III	4	4
03.161	Electromag. Fld. Thry. I	4	4	03.162	Electromag. Fld. Thry. II	4	4
02.199	Material Sci. Soc. Sci./Hum. Elec.	4	4	03.191	Intro. Dig. Comp. I	4	4
03.155	Elec. Eng. Lab III-A		1		Soc. Sci./Hum. Elective	4	4
				03.156	Elec. Eng. Lab III-B	0(4)	1

Fifth Year**Quarter 10****Quarter 11**

No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
03.175	Electromech. Dynamics	4	4		Soc. Sci./ Hum. Elective	4	4
	Soc. Sci./ Hum. Elec.	4	4		Tech. Electives	8(12)	8(12)
	Tech. Elec.	4	4				
	Tech. Elec.	4	4				
03.134	Elec. Eng. Lab IV	0(4)	2				

Note: Seven arts and sciences electives (in either social science or humanities subjects) are required for graduation. Two of these may be taken on a pass/fail basis, NOT both in the same quarter.

Four technical electives are required for graduation. * Classes before 1982 took 09.106 and 09.107.

Specimen Program in Power Systems**First Year****Quarter 1****Quarter 2****Quarter 3**

No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
10.150	Calculus I	4	10.151	Calculus II	4	10.152	Calculus III	4
11.203	Physics I	4	11.204	Physics II	4	11.205	Physics III	4
09.108	Comp. For Eng.	4	09.109	Eng. Graph. and Des.	4	12.115	Gen. Chem.	4
30.114	Intro. Lit.	4	12.114	Gen. Chem. I	4	30.115	Gr. Th. Lit.	4

Second Year**Quarter 4****Quarter 5**

No.	Course	Q.H.	No.	Course	Q.H.
10.153	Calculus IV	4	10.154	Calculus V	4
11.206	Physics IV	4	02.163	Mech.	4
03.111	Circ. and Sys. I	4	03.112	Circ. and Sys. I	4
	Soc. Sci./ Hum. Elective	4		Soc. Sci./ Hum. Elective	4
03.151	Elec. Eng. Lab I-A	1	03.152	Elec. Eng. Lab I-B	1
11.110	Physics Lab I	1	11.111	Physics Lab II	1

Third Year**Quarter 6****Quarter 7**

No.	Course	Q.H.	No.	Course	Q.H.
10.155	Math. Analysis I	4	10.156	Math. Analysis II	4
02.130	Therm. I	4	03.122	Circ. and Sys. IV	4
03.113	Circ. and Sys. III	4	03.141	Electronics I	4
03.101	Discrete Sys.	4		Soc. Sci./ Hum. Elective	4
03.153	Elec. Eng. Lab II-A		03.154	Elec. Eng. Lab II-B	1

Quarters 4 and 6 offered Fall and Winter.

Quarters 5 and 7 offered Spring and Summer.

Fourth Year**Quarter 8 (Fall Only)****Quarter 9 (Spring Only)**

No.	Course	Q.H.	No.	Course	Q.H.
02.131	Therm. II	4	03.162	Electromag. Fld. Thry. II	4
03.142	Electronics II	4	03.022	Elec. Power Sys. II	4
03.161	Electromag. Fld. Thry. I	4	03.144	Electronics III	4
03.221	Elec. Pwr. Sys. I	4		Soc. Sci./ Hum. Elective	4
03.115	Elec. Eng. Lab IIIA		03.246	Elec. Eng. Pwr. Lab I	1

Fifth Year

Quarter 10 (Winter Only)			Quarter 11 (Spring Only)		
No.	Course	Q.H.	No.	Course	Q.H.
02.236	Nuclear Eng.	4	03.191	Intro. Dig. Comp.	4
03.176	Mach. and Sys.	4	03.176	Mach. and Sys.	4
03.178	Transients in			A. & S. Elective	4
	Elec. Pwr. Sys.	4		Tech. Elective	4
	Soc. Sci./				
	Hum. Elective	4			
03.234	Elec. Eng. Pwr.				
	Lab II	2			

*In Quarter 11, the technical elective is not required for graduation.

Specimen Program in General Engineering

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
10.150	Calculus I	4	10.151	Calculus II	4	10.152	Calculus III	4
11.203	Physics I	4	11.204	Physics II	4	11.205	Physics III	4
09.108	Comp. for Eng.	4	09.109	Eng. Graph.		30.115	Gr. Th. Lit.	4
30.114	Intro. Lit.	4		and Des.	4		Soc. Sci./	
				Soc. Sci./			Hum. Elective	4
				Hum. Elective	4			

Quarters 4, 6, 8, and 10 offered Fall and Winter.

Quarters 5, 7, and 9 offered Spring and Summer.

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
10.153	Calculus IV	4	10.154	Calculus V	4
11.206	Physics IV	4		Eng. Sci. Elective	4
	Eng. Sci. Elective	4		Coord. Study	
	Soc. Sci./			Elective	4
	Hum. Elective	4		Soc. Sci./	
11.110	Physics Lab I	1		Hum. Elective	4
			11.111	Physics Lab II	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
	Eng. Sci. Elective	4		Eng. Sci. Elective	4
	Coord. Study			Eng. Sci. Elective	4
	Elective	4		Coord. Study	
	Coord. Study			Elective	4
	Elective	4		Soc. Sci./	
	Soc. Sci./			Hum. Elective	4
	Hum. Elective	4			

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
	Eng. Sci. Elective	4		Eng. Sci. Elective	4
	Eng. Sci. Elective	4		Eng. Sci. Elective	4
	Coord. Study			Coord. Study	
	Elective	4		Elective	4
	Coord. Study			Coord. Study	
	Elective	4		Elective	4

Fifth Year

Quarter 10

No.	Course	Q.H.
	Eng. Sci. Elective	4
	Eng. Sci. Elective	4
	Coord. Study	
	Elective	4
	Coord. Study	
	Elective	4

Quarter 11

No.	Course	Q.H.
	Eng. Sci. Elective	4
	Coord. Study	
	Elective	4
	Coord. Study	
	Elective	4
	Coord. Study	
	Elective	4

Coordinated Study electives are a group of courses chosen to meet the student's career objectives; these courses will be selected in conjunction with the student's adviser and subject to the adviser's approval.

Specimen Program in Industrial Engineering

First Year

Quarter 1

No.	Course	Q.H.
10.150	Calculus I	4
11.203	Physics I	4
*09.108	Comp. for Eng.	4
30.114	Intro. Lit.	4

Quarter 2

No.	Course	Q.H.
10.151	Calculus II	4
11.204	Physics II	4
*09.109	Eng. Graph. and Des.	4
12.114	Gen. Chem.	4

Quarter 3

No.	Course	Q.H.
10.152	Calculus III	4
11.205	Physics III	4
12.115	Gen. Chem.	4
30.115	Gr. Th. Lit.	4

*Note: Class of 1981 took 09.106 and 09.107.

Second Year

Quarter 4

No.	Course	Cl.	Q.H.
05.128	Work Des.	3(3)	4
10.153	Calculus IV	4	4
11.208	Physics IV	4	4
39.115	Economics I	4	4
11.110	Physics Lab I	0(3)	1

Quarter 5

No.	Course	Cl.	Q.H.
05.145	Probabilistic Analysis	4	4
02.165	Mech.	4	4
10.154	Calculus V	4	4
39.116	Economics II	4	4
11.111	Physics Lab II	0(3)	1

Third Year

Quarter 6

No.	Course	Cl.	Q.H.
05.201	Prin. of Comp. and Prog. I	4	4
03.183	Elec. Eng. I	4	4
	Meth. Elective	4	4
05.147	Statistics I	4	4

Quarter 7

No.	Course	Cl.	Q.H.
05.148	Statistics II	4	4
05.161	Operations Res. I	4	4
	Eng. Sci. Elective	4	4
05.150	Indus. Cost Cont.	4	4

Fourth Year

Quarter 8

No.	Course	Cl.	Q.H.
05.130	Systems I	4	4
05.240	Dig. Sim. Tech.	4	4
05.163	Operations Res. II	4	4
	Soc. Sci./Hum. Elec.	4	4
37.102	Effect. Speaking	3	3

Quarter 9

No.	Course	Cl.	Q.H.
05.131	Systems II	4	4
05.261	Eng. Econ. and Dec. Thry.	4	4
	Eng. Sci. Elective	4	4
	Soc. Sci./Hum. Elective	4	4

Fifth Year

Quarter 10

No.	Course	Cl.	Q.H.
05.186	People in Organizations	4	4
	Tech. Elective	4	4
	Tech. Elective	4	4
	Soc. Sci./Hum. Elec.	4	4

Quarter 11

No.	Course	Cl.	Q.H.
	Tech. Elective	4	4
	Tech. Elective	4	4
	Open Elective	4	4
	Soc. Sci./Hum. Elective	4	4

Specimen Program in Mechanical Engineering

First Year

Quarter 1				Quarter 2				Quarter 3			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
*09.108	Comp. for Eng.	4	4	*09.109	Eng. Graph and Des.	4	4	10.152	Calculus III	4	4
10.150	Calculus I	4	4					11.205	Physics III	4	4
11.203	Physics I	4	4	10.151	Calculus II	4	4	*30.115	Gr. Th. Lit.	4	4
*30.114	Intro. Lit.	4	4	11.204	Physics II	4	4	*12.115	Gen. Chem.	4	4
				*12.114	Gen. Chem.	4	4				

* First-year pattern of two-term courses may vary according to assigned section.

Second Year

Quarter 4				Quarter 5			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
02.165	Mech. I	4	4	02.167	Mech. III	4	4
10.153	Calculus IV	4	4	02.130	Therm. II	4	4
11.206	Physics IV	4	4	10.154	Calculus V	4	4
11.110	Physics Lab I	0(3)	1	11.111	Physics Lab II	0(3)	1
39.115	Prin. and Prob. of Econ.	4	4		Soc. Sci./ Hum. Elective	4	4

Third Year

Quarter 6				Quarter 7			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
02.131	Therm. II	4	4	02.155	Fluid Mech. I	4	4
02.166	Mech. II	4	4	02.196	Materials Sci.	4(3)	5
02.192	Meas. and Analysis	0(3)	4	10.156	Math. Analysis II	4	4
10.155	Math. Anal. I	4	4	02.168	Mech. IV	4	4

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
	Tech. Elective	4	4	02.150	Heat Transfer I	4	4
	Tech. Elective	4	4	02.176	Dynamics	4	4
	Tech. Elective	4	4		Tech. Elective	4	4
	Soc. Sci./ Hum. Elec.	4	4		Soc. Sci./ Hum. Elective	4	4

Fifth Year

Quarter 10				Quarter 11			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
	Tech. Elective	4	4		Tech. Elective	4	4
	Tech. Elective	4	4		Tech. Elective	4	4
	Tech. Elective	4	4		Tech. Elective	4	4
	Soc. Sci./ Hum. Elec.	4	4		Soc. Sci./ Hum. Elective	4	4

Elective requirements for the junior and senior year (B.S. in M.E.)

There are ten (10) technical electives to be selected by juniors and seniors in addition to four (4) arts and sciences electives. Courses are subject to the following departmental restrictions:

A. Social Sciences/Humanities electives: (four required)

These elective arts and sciences courses must be selected from a Department-approved list of humanities and/or social science courses which is available during preregistration.

B. Required technical electives: (three required)

- 03.183 Electrical Engineering I (Fall, Winter)
- 02.197 Mechanical Behavior of Materials (Fall, Winter) or
02.198 Materials Processing (Spring, Summer)
- 02.146 Mechanical Engineering Design (Spring - Prereq. 02.145 Fall, Winter) or
02.147 Engineering Design (Fall, Winter, Spring)

C. Additional technical electives: (seven required)

The remaining technical electives should be chosen after consideration of your professional career objectives and must be approved by your adviser during preregistration in the Department. The majority of these courses must be selected from the Mechanical Engineering elective course offerings. The student's area of concentration determines the recommended courses from which he or she is to choose electives.

Specimen B.S./M.S. Program in Mechanical Engineering

During the first two years of study, students enrolled in the B.S./M.E. Program in Mechanical Engineering pursue a curriculum similar to that of the regular M.E. Program.

Third Year

Quarter 6				Quarter 7			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
02.131	Therm. II	4	4	02.155	Fluid Mech.	4	4
02.166	Mech. III	4	4	02.196	Materials Sci.	4(3)	5
02.192	Meas. and Analysis	2(3)	4	02.168	Mech. IV	4	4
10.155	Math Analysis	4	4	10.156	Math Analysis	4	4
	Soc. Sci./Hum. Elective	4	4		Soc. Sci./Hum. Elective	4	4

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
	Tech. Elective	4	4	02.150	Heat Transfer I	4	4
	Tech. Elective	4	4	02.176	Dynamics	4	4
	Tech. Elective	4	4		Tech. Elective	4	4
	Soc. Sci./Hum. Elective	4	4		Soc. Sci./Hum. Elective	4	4
	Grad. Elective	2	2		Grad. Elective	2	2
02.826	Math Methods I	2	2	02.827	Math. Methods II	2	2

Fifth Year

Quarter 10				Quarter 11				Quarter 12			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
	Grad. Elective	8	8		Grad. Elective	8	8		Thesis	6	6
	Tech. Elective	4	4		Tech. Elective	4	4		Tech. Elective	4	4
	Tech. Elective	4	4		Tech. Elective	4	4		Tech. Elective	4	4
	Seminar	1	1		Seminar	1	1		Grad. Elective	4	4
									Grad. Elective	4	4

Technical elective requirements are the same as those for the regular Mechanical Engineering program.

Specimen B.S. Program in Computer Science

First Year

Quarter 1				Quarter 2				Quarter 3			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.150	Calculus I	4		10.151	Calculus II	4		10.152	Calculus III	4	
11.117	Physics I	(1)	4	11.118	Physics II	(1)	4	11.119	Physics III	(1)	4
06.100	Comp. Sci. I	4		06.101	Comp. Sci. II	4			Soc. Sci./Hum.	4	
30.113	Fresh. Writ.	4		30.114	Intro. to Lit.	4		09.140	Applied Prog.	4	
								06.110	Prog. Lang. Lab	1	

Second Year

Quarter 4				Quarter 5			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.153	Calculus IV	4		10.210	Discrete Math	4	
06.130	Assembly Lang. I	4		06.131	Assembly Lang. II	4	
06.201	Data Structures	4		03.191	Comp Org & Des I	4	
	Soc. Sci./Hum.	4			Soc. Sci./Hum.	4	
06.111	Prog. Lang. Lab II	1		06.112	Prog. Lang. Lab. III	1	

Third Year

Quarter 6				Quarter 7			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.248	Lin. Algebra		4	05.145	Probability	(2)	4
08.220	File Processing		4	06.230	Operating Sys.		4
03.192	Comp Org & Des		4		Coordinated Study		4
	Coordin. Study		4		Soc. Sci./Hum.		4

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
05.147	Statistics I	(2)	4	06.260	Compiler Des. I		4
08.240	Analysis of			06.265	Anal. of Algorithms		4
	Prog. Lang		4		Coordinated Study		4
06.250	Automa and				Soc. Sci./Hum.		4
	Formal Lang.		4				
	Soc. Sci./Hum.		4				

Fifth Year

Quarter 10				Quarter 11			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
	Comp. Sci. Elect	(3)	4		Coordinated Study		4
	Coordin. Study		4		Coordinated Study		4
	Coordin. Study		4		Soc. Sci./Hum.		4
06.291	Comp. Sci. Proj.		4	06.295	Comp. Sci. Sem.		4

- 1. Students with a very strong interest in life science may be allowed to substitute 12.127 - 12.129 or 18.131 - 18.133 if schedule permits. 11.203, 204, 205 substituted for 11.117, 118, 119 for 1980-81 Academic Year.
- 2. Students interested in the theoretical aspects of computer science should substitute 10.208 and 10.220.
- 3. 06.280 Artificial Intelligence, 06.210 Computer Graphics or 06.225 Data Base Management.

Lincoln College

Specimen Program in Electrical Engineering Technology

First Year

Quarter 1				Quarter 2				Quarter 3			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.407	Col. Alg. and Trig. I	4	4	10.408	Col. Alg. and Trig. II	4	4	10.420	Calculus I	4	4
11.417	Physics I	4	4	11.418	Physics II	4	4	11.419	Physics III	4	4
30.113	Fresh. Writ.	4	4	30.114	Intro. Lit.	4	4	30.206	Prof. Writing	4	4
09.421	Graphics I	4		06.400	Comp. Prog.	4	4	09.471	Graphics II	4	4
				11.473	Physics Lab I	2	2	11.474	Physics Lab II	2	2

Second Year

Quarter 4				Quarter 5			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.421	Calculus A	4	4	10.422	Calculus B	4	4
03.451	Circ. Analysis I	4	4	03.452	Circ. Analysis II	4	4
39.115	Economics	4		02.419	Mechanics	4	4
	Soc. Sci.	4			Soc. Sci.	4	4
				03.424	Cir. Lab I		2

Third Year

Quarter 6				Quarter 7			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
03.460	Eng. Analysis I	4	4	03.454	Circ. Analysis IV	4	4
03.453	Circ. Analysis III	4	4	03.412	Electronics II	4	4
03.411	Electronics I	4	4	03.410	Electrical Meas.	4	4
03.425	Circ. Lab II	2	2	03.423	Electronic Lab	4	4
03.430	Energy Conv.		4				

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
03.413	Electronics III	4	4	03.428	Adv. Electronic Lab II	2	2
03.427	Adv. Electronic Lab I	2	2		Tech. Elective	4	4
	Tech. Elective		4	03.414	Pulse & Dig I		4
	Soc. Sci.		4		Soc. Sci.		4
				05.437	Dist. Syst.		4

Fifth Year

Quarter 10				Quarter 11			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
03.429	Adv. Electronic Lab II	2	2		Tech. Elective	4	4
	Tech. Elective		4	03.478	Cont. Sys. II		4
03.477	Cont. Sys. I		4	03.471	Dig. Comp. II		4
03.470	Dig. Comp. I		4		Soc. Sci.		4

Technical Elective Sequences

(A) Power Systems Sequence

No.	Course	Q.H.
03.462	Bas. Pwr. Sys. I	4
03.463	Bas. Pwr. Sys. II	4
03.464	Bas. Pwr. Sys. III	4
	Tech. Elective	4

(B) Communications Engineering Sequence

No.	Course	Q.H.
03.417	Prin. of Com. Sys I	4
03.418	Prin. of Com. Sys II	4
03.419	Prin. of Com. Sys III	4
	Tech. Elective	4

Specimen Program in Mechanical Engineering Technology

First Year

Quarter 1				Quarter 2				Quarter 3			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.407	Col. Alg. and Trig. I	4	4	10.408	Col. Alg. and Trig. II	4	4	10.420	Calculus I	4	4
11.417	Physics I	4	4	11.418	Physics II	4	4	11.419	Physics III	4	4
30.113	Fresh Writ.	4	4	11.473	Physics Lab I			11.474	Physics Lab II		
09.470	Engineering Graphics I			30.114	Intro. Lit.	4	4	30.206	Lit. of Engineering	4	4
	Or			06.400	Prin. of Comp. Prog. 1			09.471	Engineering Graphics II	4	4
06.400	Prin. of Comp. Prog. 1	4	4	09.470	Engineering Graphics I	4	4				

Second Year

Quarter 4				Quarter 5			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
10.421	Calculus A	4	4	10.422	Calculus B	4	4
09.464	Engin. Design Graphics	4	4	02.412	Mechanics B	4	4
02.411	Mechanics A	4	4	02.414	Stress Anal. A	4	4
03.420	Electricity & Electronics	4	4		A. & S. Elective I	4	4

Third Year

Quarter 6				Quarter 7			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
02.415	Stress Anal. B	4	4	02.431	Materials A	4	4
02.473	Meas. & Anal. Lab	2	2	02.474	Technol. Lab A	2	2
02.421	Thermodynamics A	4	4	02.422	Thermodynamics B	4	4
02.413	Mechanics C	4	4	02.443	Fluid Mech. A	4	4
39.115	Econ. Prin. & Probs.	4	4				

Fourth Year

Quarter 8				Quarter 9			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
02.480	Mech. Design A	4	4	02.481	Mech. Design B	4	4
02.475	Tech. Lab B	2	2	02.476	Tech. Lab C	2	2
02.444	Fluid Mechanics B	4	4	02.423	Refrig & Air Cond.	4	4
02.461	Machine Shop (Indus. Engin. Elec. on petition with experience)	4	4		A. & S. Elec. I	4	4
	A. & S. Elec.	4	4				

Fifth Year

Quarter 10				Quarter 11			
No.	Course	Cl.	Q.H.	No.	Course	Cl.	Q.H.
02.477	Tech. Lab. D	2	2	02.478	Tech. Lab E	2	2
05.460	Engin. Economy	4	4	02.430	Heat Transfer	4	4
	A & S Elec. I	4	4		Tech. Elec. I	4	4
	Tech. Elec. I	4	4		A & S Elec. I	4	4
02.432	Materials B	4	4				
	or						
02.416	Stress Anal. C	4	4				

Technical electives must be chosen from the following list:

02.416	Stress Analysis C	4	10.423	Differential Equations	4
02.452	Exp. Stress Analysis	4	03.421	Electricity and Electronics	4
02.451	Mech. Vibrations	4	03.490	Optical Instrumentation	4
02.432	Materials B	4	04.481	Nuclear Technology	4
02.433	App. Metallurgy	4			
02.479	Power Gen.	4			

College of Nursing

Specimen Program for Baccalaureate Degree in Nursing

First Year

Quarter 1					Quarter 2					Quarter 3				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
18.141	Bas. Ani. Blo.	3	4	4	12.106	Gen. Chem.	4	3	5	12.104	Gen. Chem.	4	3	5
23.101	West. Civ.	3		4	18.142	Bas. Ani. Blo. II	3	4	4	18.148	Hum. Ana.	3	3	4
30.113	Fresh Writ.	4		4	30.114	Intro. to Lit.	4		4	23.102	West. Civ.	4		4
80.217	Nursing	4		4	80.218	Nursing	4		4	80.219	Nursing	4		4

Second Year

Quarter 4					Quarter 5				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
18.120	Bas. Microbio.	3	4	4	18.144	Hum. Physiol. I	3	3	4
18.143	Hum. Physiol.	3	3	4	19.106	Fnd. Psych. II	4		4
19.105	Fnd. Psych. I	4		4	20.100	Soc. Anthro.	4		4
80.204	Nursing	3	6	5	80.205	Nursing	3	6	5

Third Year

Quarter 6					Quarter 7				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
Section I					Section I				
19.141	G and D I.	4		4	19.142	G and D II	4		4
19.130	Soc. Psych.	4		4	21.100	Sociology	4		4
83.201	Psych. Nursing	4	15	9	73.116	Pharmacol.	3		3
					80.207	Nursing	5	6	7
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
Section II					Section II				
19.141	G and D I	4		4	19.142	G and D II	4		4
73.116	Pharmacol.	3		3	19.130	Soc. Psych.	4		4
21.100	Sociology	4		4	83.201	Psych. Nurs.	4	15	9
80.207	Nursing	5	6	7					

Fourth Year

Quarter 8					Quarter 9				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
*82.201	Mat. Child. Nur.	4	15	9	*81.201	Med. Surg.			
	Hum. Elective	4		4		Nursing	4	15	9
	Gen. Elective	4		4		Hum. Elective	4		4
						Gen. Elective	4		4

Fifth Year

Quarter 10					Quarter 11				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
84.201	Com. Hlth. Nur.	5	12	9	85.201	Contemp. Nur.	2	21	9
	Elective	4		4		Elective	(4)		(4)
	Elective	4		4		(if desired)			

179 quarter hours needed for graduation.

*Each of these courses is offered in Quarters 8 and 9, but only one is to be taken per quarter.

Degrees

The College of Nursing offers a five-year program leading to the Bachelor of Science degree in Nursing, and Registered Nurse day and evening programs leading to the Bachelor of Science degree in Nursing. The length of these programs varies depending on the individual's interest and ability to achieve advanced placement.

Quantitative Requirements

Candidates for the Bachelor of Science degree must successfully complete all of the prescribed courses in the applicable curriculum. For the Bachelor of Science degree this totals 179 quarter hours. The prescribed periods of cooperative work at health agencies associated with the University are not required of the Bachelor of Science Programs for Registered Nurses.

College of Pharmacy and Allied Health Professions

Specimen Program in Pharmacy (Five-Year Cooperative)

First Year

Quarter 1					Quarter 2					Quarter 3				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
	Electives			8	18.131	Gen. Bio.	3	4	4	71.259	Bas. Pharmacy	3		3
*10.104	Fund. Math.	4		4	*10.105	Funct. and Bas.				12.119	Gen. Chem	4	3	5
*10.105	Funct. and Bas.				Cal.	4		4		18.132	Anl. Bio.	3	4	4
	Cal.	4		4	*10.107	Calculus	4		4	30.114	Intro. Lit.	4		4
12.106	Gen. Chem.	4	3	5	30.113	Fresh.Writ.	4		4					
					87.135	Prof. Dynamics								
						In Health Care								
						Deliv. Sys.	4		4					

Second Year

Quarter 4 (Entire Class) (Sept.-Dec.)					Quarter 4A (Entire Class) (Jan.-March)					Quarter 5 (April-June & June-Sept.)				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
11.171	Physics I	4		4	11.175	Physics III	4		4	73.202	Anat.			
12.144	Organic Chem.	4	(3)	5	12.145	Organic Chem.	4	(3)	5		Physiology	4	(3)	5
21.107	Soc. Psych.	4		4	A. & S.					93.156	Bio. Chem.	5		5
	A. & S. Elective			4	Electives	8		6			A. & S.			
											Electives	8		8

Third Year

Quarter 6					Quarter 7				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
71.140	Pharmaceutics	4		4	71.141	Pharmaceutics	5		5
72.135	Anti-Infectives				73.245	Pathology	4		4
	Struc. & Action	5		5	73.229	Pharmacol.			
73.204	Anat. &				Lab. I	0	(3)		1
	Phys. II	4	(3)	5	71.142	Pharmaceu. L.	1	(3)	2
72.263	Med. Chem./				73.264	Pharmacol.			
	Pharmacol. I	4		4		Med./Chem. II	6		6

Fourth Year

Quarter 8					Quarter 9 (Entire Class) (April-June)				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
73.265	Pharmacol.				73.247	Toxicology	4		4
	Med./Chem. III	6		6	71.288	P.P. II (OTC			
71.284	Bloph/P'kin.	4		4	Drugs)	4		4	
73.230	Pharmacol.				71.268	Clin. Pharmaco -			
	Lab. II	0	(3)	1	therapeutics	5		5	
73.230	Drug Analysis	4	(3)	5	71.269	Pharmacokinetic			
						Prin. In Drug			
						Therapy	4		4

Fifth Year

Quarter 10					Quarter 10A					Quarter 11				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
71.284	Prof. Prac. Lab I		3	1	71.283	Prof. Prac. I	4		4	71.245	Pharmacy Admin.			
71.283	Prof. Prac.1 or Prof. Elective	4		4	71.284	Prof. Prac. Lab I or Prof. Prac. Lab II		3	1	71.286	Prof. Prac. Lab. II	4		4
65.218	Pub. Hlth.	3		3	71.286	Prof. Prac. Lab II		3	1	71.288	Prof. Prac. II		3	1
71.243	Pharmaceut. Juris.	4		4	71.288	Prof. Prac. II	4		4	71.288	Prof. Prac. II or Prof. Elective	4		4
90.251	Place. Techniq. or Prof. Elective	1		1	65.218	Pub. Hlth.	3		3	71.254	Clin. Pharmacy	2	36	14
71.254	Clin. Pharmacy	2	36	14	71.243	Pharmaceut. Juris.	4		4					
					90.251	Place Techniq. or Prof. Elective	1		1					
					71.245	Prof. Elective Pharmacy Admin. or Prof. Elective			4					
							4		4					
									4					
					71.254	Clin. Pharmacy	2	36	14					

*Minimum math requirement: 10.107.
12.127, 128, General Chemistry, may be taken in place of 12.119, but one year of high school calculus is recommended.
21.107 may be taken any quarter of the second year.

Specimen Program in Dental Hygiene*

First Year

Quarter 1					Quarter 2					Quarter 3				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
12.111	Gen. Chem.	3	(3)	4	12.112	Gen. Chem.	3	(3)	4	18.120	Bas. Microbio.	3	(3)	4
18.114	Func. Hum. Anat. I	4	(3)	5	18.115	Func. Hum. Anat. II	4	(3)	5		Prof. Courses			
	Prof. Courses					Prof. Courses								

Second Year

Quarter 4					Quarter 4A					Quarter 5				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
30.113	Fresh. Writ. or Prof. Courses	4		4	19.105	Fnd. Psych. I	4		4	21.100	Intro. Soc.	4		4
						Prof. Courses				30.114	Intro. Lit. or Prof. Courses	4		4

* Students are admitted directly to the Forsyth School for Dental Hygienists and should contact the School for catalogs, applications, and complete program information by writing to:
Forsyth School for Dental Hygienists
140 The Fenway
Boston, Massachusetts 02115

Specimen Program in Medical Laboratory Science
(Five-Year Cooperative)

First Year

Quarter 1					Quarter 2					Quarter 3				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
10.104	Fund. Math. or	4		4	10.105	Func. and Bas. Calc. or	4		4		Elective	4		4
10.105	Func. and Bas. Calc.	4		4	10.107	Calculus	4		4	30.114	Intro. Lit.	4		4
12.127	Gen. Chem.	4	(3)	5	12.119	Gen. Chem.	4	3	5	87.150	Bas. Med. Lab. Sci.	2	(3)	3
	or				18.132	Anl. Bio.	3	(4)	4	12.171	Analyt. Chem.	3	(3)	4
12.106	Gen. Chem.	4	(3)	5	87.100	Lab. Med. Orient.	1		1					
18.131	Gen. Bio.	3	(3)	4										
30.113	Fresh. Writ.	4		4	87.135	Prof. Dynamics in the Hlth. Care Deliv. System	4		4					

Second Year**Quarter 4 Entire Class***

No.	Course	Cl.	L.	Q.H.
12.144	Organ. Chem. I	4	(3)	5
	Elective	4		4
18.143	Hum.			
	Physiology I	3	(3)	4
87.154	Bas. MLS. Clin.			
	Microbio.	4	(6)	6

Quarter 4A Entire Class*

No.	Course	Cl.	L.	Q.H.
87.152	Bas. MLS. Hemat. II	2	(3)	3
87.153	Bas. MLS. Immunohem. 2		(3)	3
87.151	Bas. MLS. Hemat 2		(3)	3
87.113	Clinical Immunology Elective	2	(3)	3
				4

+ Quarter 5

No.	Course	Cl.	L.	Q.H.
12.145	Organic Chem. II	4	(3)	5
18.144	Hum. Physiology	3	(3)	4
87.155	Bas. MLS. Clin. Chem. Elective	4	(3)	5
		4		4

+ Regular co-op sequence starts here.

+ MLT applies for clinical.

*Depending on group assignment, this is a sample of the second year.

Third Year**Quarter 6**

No.	Course	Cl.	L.	Q.H.
18.135	Genetic & Devel. Bio.	3	(4)	4
11.171	Physics I	4		4
87.106	Bas. MLS. Electronics & Instru. I		(3)	1
87.204	Med. Parasit.	1	(3)	2
87.114	Mycology	1	(3)	2
87.250	Communic. Hlth. Sci. Elective	4		4
		4		4

***Quarter 7**

No.	Course	Cl.	L.	Q.H.
18.136	Cell Physiology and Biochem.	3	(4)	4
11.172	Physics II	4		4
18.221	Gen. Microbio. Elective	3		3
		4		4

*M.T. apply for Clinical

Fourth Year**Quarter 8**

No.	Course	Cl.	L.	Q.H.
87.162	Hemat. App. Study	3		3
87.163	Immunohem. App. Study or	2		2
87.164	Clin. Microbio. App. Study or	5		5
87.165	Clin. Chem. App. Study	5		5
87.232	Hemat. III	3		3
87.225	Clin. Chem. II	2		2
87.224	Clin. Micro. II	2		2

Quarter 9

No.	Course	Cl.	L.	Q.H.
87.162	Hemat. Appl. Study	3		3
87.163	Immunohem. App. Study or	2		2
87.164	Clin. Microbio. App. Study or	5		5
87.165	Clin. Chem. App. Study	5		5
87.280	MLS. Spec. Topic	2		2
87.242	Hemat. IV	2		2
87.244	Clin. Micro. III	2		2
87.245	Clin. Chem. III	2		2

Fifth Year**Quarter 10**

No.	Course	Cl.	L.	Q.H.
87.162	Hemat. App. Study	3		3
87.163	Immunohem. App. Study or	2		2
87.184	Clin. Microbio. App. or	5		5
87.165	Clin. Chem. App. Study	5		5
87.253	Immunohem.	2		2
87.235	Clin. Chem. IV	2		2
87.234	Chem. Micro. IV	2		2
	Prof. Elective Elective	4		4
		4		4
87.221	Med. Lab. Mgt.	2		2
87.226	MLS. Education	2		2
87.281	MLS. Sen. Sem.	2		2

11.117 may be substituted for 11.171
 11.118 may be substituted for 11.172
 12.172 may be substituted for 12.171

A minimum of 12 Q.H. of humanities electives
 12 Q.H. of social science electives
 12 Q.H. of other electives

Specimen Program in Health Record Administration
(Five-Year Cooperative)

First Year

Quarter 1					Quarter 2					Quarter 3				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
10.101	Bas. Math	4		4	10.102	Bas. Math	4		4	*	Mod. Lang. or	4		4
18.131	Gen. Bio.	3	(3)	4	30.114	Intro. Lit.	4		4	*22.111	Amer. Govt.	4		4
19.105	Fnd. Psych. I	4		4	18.132	Anl. Bio.	3	(4)	4	19.106	Fnd. Psych. II	4		4
30.113	Fresh. Writ.	4		4	*	Mod. Lang. or	4		4		A. & S.			
86.158	Orient. Med. Rec. I	1		1	*22.110	Pol. Sci.	4		4	18.121	Elective			4
					86.159	Med. Rec. II	1		1		Microbio.	3		3

Second Year

Quarter 4					Quarter 5				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
18.114	Func. Hum. Anat. I	4	(3)	5	18.146	Hum. Anat. & Physiol. II	3	(3)	4
*23.101	West. Civ. or	4		4	*23.102	West. Civ. or	4		4
*39.115	Prin. and Prob. Econ.	4		4	*39.116	Prin. & Prob. Econ. or	4		4
45.209	Org. Behav. I	4		4	*39.130	Med. Econ.	4		4
21.100	Intro. Soc. 4	4		4	10.108	Prob. Stat. & Computers	4		4
87.134	Dynamics of Health	2		2	29.129	Intro. to Commun. Ski.	4		4

Third Year

Quarter 6					Quarter 7				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
86.102	Hosp. Law.	2		2	86.162	Mgt. Prin. Hlth. Care	4		4
86.151	Hlth. Rec. Sci. I	3	(3)	4	86.113	Fnd. Med. Sci. II	3		3
86.107	Med. Term.	4		4	86.152	Hlth. Rec. Sci. III	3	(3)	4
86.112	Fnd. Med. Sci. I	3		3	86.160	Intro. to Data Proc. Hlth. Sci.	4		4
	Elective	4		4					

Fourth Year

Quarter 8					Quarter 9				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
86.153	Hlth. Rec. Sci. III	3	(3)	4	*18.164	Spec. Top. I			2
05.127	Conc. & Appl. Work Des.	4		4	*86.165	Spec. Top. II			2
*86.164	Spec. Topic I			2	86.166	Appl. Hlth. Stat.	4		4
*86.165	Spec. Topic II			2	86.154	Hlth. Rec. Sci. IV	3	(3)	4
86.173	Clin. Sem.	2		2	86.266	Org. & Mgt. Med. Rec. II	3	(3)	4
86.260	App. Hlth. Rec. Prac. I			3	86.261	App. Hlth. Rec. Prac. II			1
86.265	Org. & Mgt. Med. Rec. Dp. I	3	(3)	4	86.161	Quality Assur.	4		4

Fifth Year

Quarter 10					Quarter 11				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
*86.164	Spec. Topic I			2	86.157	Sem. Hlth. Rec	2		2
*86.165	Spec. Topic II			2	86.164	Spec. Topic I			2
86.267	Org. & Mgt. Med. Rec. III	3	(3)	4	86.165	Spec. Topic II			2
	Elective			4	86.167	Hlth. Rec. Prof: Issues & Prob.	2		2
86.166	Med. Comp. App.			4	86.264	App. Hlth. Rec. Prac. III			4
87.226	Hlth. Sci. Ed.			2					

* By permission of Program Director

Specimen Program in Respiratory Therapy B.S. (Five-Year Cooperative)

First Year

Quarter 1					Quarter 2					Quarter 3				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
10.104	Fund. Math.	4		4	10.105	Func. and Bas. Calc.	4		4	11.136	Bas. Physics	3		4
12.106	Gen. Chem.	4	(3)	5						12.119	Gen. Chem.	4	(3)	5
18.141	Bas. Ani. Blo.	3	(3)	4	18.142	Bas. Ani. Blo. II	3	(4)	4	18.120	Microbio.	3	(4)	4
30.113	Fresh. Writ.	4		4						86.213	Resp. Ther. Sem. III A. & S. Elective	1		1
86.211	Resp. Ther. Sem. I	1		1	30.114	Intro. Lit.	4		4					
					86.103	Bas. Med. Term.	2		2					4
					86.212	Resp. Ther. Sem. II	1		1					
					87.135	Prof. Dynamics in the Hlth Care Delivery Sys.	4		4					

Second Year

Quarter 4					Quarter 4A					Quarter 5				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
73.202	Anat. Physiol.	4	(3)	5	73.117	Pharmacol./ Resp. Care	4		4	86.203	Prof. Prac. Lab. III		(3)	1
86.201	Prof. Prac. Lab I		(3)	1	73.204	Anat-Physio.	4	(3)	5	86.214	Clin. Sem. I	1		1
86.221	Intro. Patient Care	2		2	86.202	Prof. Prac. Lab. II		(3)	1	86.233	Resp. Care/ Med. Surg.	4		4
86.226	Cardio. Pul. Phys. A. & S. Elective	4		4	86.222	Intro. Resp. Care	3		3	86.102	Hosp. Law	2		2
					86.227	Cardio.-Pul. Dis.	4		4	86.228	Clin. Prac. I		(24)	6

Third Year

Quarter 6					Quarter 7**				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
86.112	Fnd. Med. Sci. I	3		3	86.205	Cardio.-Pul. Lab. Prac.		(3)	1
86.204	Prof. Prac. Lab. IV		(3)	1	86.225	Cardio.-Pul. Techniq.	3		3
86.229	Clin. Prac. II		(24)	6	86.281	Pediatrics A. & S. Electives	2		2
86.215	Clin. Sem. II	1		1					6
86.234	Resp. Care/ Crit. Patient	4		4					

Fourth Year

Quarter 8					Quarter 9				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
12.144	Organic Chem. I	4	(3)	5	12.145	Organic Chem. II	4	(3)	5
86.218	Adv. Resp. Thrp. Sem. I	1		1	86.217	Adv. Clin. Sem. II	1		1
86.271	Adv. Life Sup. Sys. I	4		4	86.272	Adv. Life Sys. II	4		4
86.278	Adv. Med. Monit.	4		4	86.274	Adv. Clin. Phys.	4		4
						Prof. Elective			4

Fifth Year

Quarter 10					Quarter 11				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
86.218	Adv. Clin. Sem. III	1		1	86.219	Adv. Clin. Sem. IV	1		1
86.278	Neonatology	4		4	86.286	Practicum A. & S. Electives	(16)		4
86.277	Dir. Study			2		Prof. Elective			8
86.287	Practicum		(16)	4					4

*For A.S. program, substitute 86.102 & 86.112 for 12.144; A. & S. elective for 12.145.

**Final quarter for A.S. Program

Specimen Program in Toxicology (Five-Year Cooperative)

First Year

Quarter 1					Quarter 2					Quarter 3				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
10.104	Math	4		4	10.105	Math	4		4	10.107	Calculus	4		4
	Elective	4		4	12.106	Gen. Chem.	4	(3)	5	30.114	Intro. Lit.	4		4
18.131	Gen. Bio. I	2	(4)	4	18.132	Gen. Bio. II	3	(4)	4		Elective	4		4
30.113	Fresh. Writ.	4		4	73.130	Tox. Orien.	1		1	12.119	Gen. Chem.	4	(3)	5
					87.135	Prof. Dynamics In Hlth. Care Delivery System	4		4					

Second Year

Quarter 4					Quarter 4A (entire class)					Quarter 5				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
11.171	Physics	4		4	11.175	Physics	4		4	93.156	Gen. Biochem.	5		5
12.144	Org. Chem.	4	(3)	5	12.145	Org. Chem.	4	(3)	5	10.108	Prob. Stat.	4		4
73.202	Anat. & Phys.	4	(3)	5	73.204	Anat. & Phys.	4	(3)	5	01.197	Sur. Env. Prob. or Elective	4		4
	Elective	4		4							Elective	4		4

Third Year

Quarter 6					Quarter 7				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
18.120	Micro	3	(4)	4	73.264	Pharmacol. Med. Chem. II	6		6
72.263	Med. Chem.				12.253	Id. of Org. Comp.	1	(6)	3
	Pharmacol. I	4		4	73.247	Toxicology I	4		4
72.261	Id. Abuse Drugs	2	(6)	4	73.229	Pharmacol. Lab		(3)	1
01.197	Survey Env. Prob. or Elective	4		4					

Fourth Year

Quarter 8					Quarter 9				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
73.265	Pharmacol. Med. Chem. III	6		6	73.261	Special Topics	4		4
73.230	Pharmacol. Lab. II	0	(3)	1	87.155	Basic MLS Clin. Chem. & Instru.	4	(3)	5
73.253	Tox. II-Fund. Prin. of Tox.	4		4	73.247	Tox. I or Elective	4		4
73.256	Tox. Lab.	0	(3)	1	73.245	Pathology	4		4
72.230	Drug Analysis	4	(3)	5					

Fifth Year

Quarter 10					Quarter 11				
No.	Course	Cl.	L.	Q.H.	No.	Course	Cl.	L.	Q.H.
73.254	Chem. Tox.	4		4	65.219	Comm. Health	4		4
73.215	Drug Interactions	4		4		Elective	4-6		4-8
71.264	Bio. Pharm./ Pharm.	4		4		Tox. Colloq.	3		3
12.179	Inst. Analysis	3	(6)	5	25.180	Epidemiology	4		4

University College

Alternative Freshman-Year Program

Business Track: One-Year Program

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
*10.100	Math. I	4	*10.110	Math. II	4	10.118	Col. Math.	
*30.400	Fund. of Eng. I	4	23.309	Hist. of Civ. A	4		Business	4
*51.531	Integ. Lang. Skills		*30.402	Fund. of Eng. II		23.310	Hist. of Civ. B	4
	Devel. I	2		Devel. II	4	39.601	Economics I	4
			*51.532	Integ. Lang. Skills	2	49.499	Mgt. and Org. (Int.)	4
				Devel. II				

Criminal Justice, Education, or Arts and Sciences Track: One-Year Program

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
23.309	Hist. of Civ. A	4	21.401	Prin. Soc. I	4	21.402	Prin. Soc. II	4
*30.400	Fund. of Eng. I	4	22.401	Intro. Pol. Sci. I	4	22.402	Intro. Pol. Sci. II	4
*51.531	Integ. Lang.		*30.402	Fund. of Eng. II	4	23.310	Hist. of Civ. B	4
	Skills Devel. I	2	*51.532	Integ. Lang. Skills			Elective	4
				Devel. II	2			

* Indicates compensatory course.

Course Numbering Program

The number to the left of the decimal point indicates the academic department offering the course. The three digits after the decimal point differentiate the course within the department.

Accounting	41.	Industrial Engineering	05.
African-American Studies	25.	Interdisciplinary Courses	93.
Allied Health Professions	86.-87.	International Business	
Medical Laboratory Science		Administration	46.
Health Record Administration		Journalism	38.
Respiratory Therapy		Management	45.
Anthropology	20.	Marketing	43.
Art	27.	Mathematics	10.
Biology	18.	Mechanical Engineering	02.
Business, General	49.	Military Science	91.
Chemical Engineering	04.	Modern Languages	
Chemistry	12.	French	31.
Civil Engineering	01.	German	33.
Computer Science	06.	Italian	35.
Cooperative Education	90.	Portuguese	36.
Criminal Justice	92.	Russian	34.
Drama	29.	Spanish	32.
Earth Sciences	16.	American Sign Language	36.
Economics	39.	Music	28.
Education-Counseling	53.	Nursing	80.-85.
Education-Foundations	50.	Pharmacy and Toxicology	71.-73.
Education-Curriculum		Philosophy and Religion	26.
and Instruction	51.	Physical Education	62.
Education-Speech and		Physical Therapy	64.
Hearing	55.	Physics	11.
Special Education		Political Science	22.
and Rehabilitation	56.	Psychology	19.
Electrical Engineering	03.	Recreation and	
English	30.	Leisure Studies	63.
Finance and Insurance	44.	Sociology	21.
Graphic Science	09.	Speech Communication	37.
Health Education,		Transportation	48.
School and Community	65.	Alternative Freshman-Year Program	p. 210
History	23.		

Classes at Northeastern University are scheduled in different modules.

In assessing quarter weights for courses, the following statement applies:

One quarter-hour of credit is equal to 50 minutes of instruction per week, plus two hours of preparation.

Civil Engineering

The course descriptions listed under Civil Engineering are intended to show the general scope of the subject that will be covered. Since courses are continuously updated, specific topics or method of approach may vary from term to term.

01.101 Special Topics **4 Q.H.**
(Prereq. Outstanding academic performance)

The course offers individual study in an area within the field of civil engineering, selected by the student and his instructor with approval by the appropriate discipline committee, resulting in a definitive report and an oral presentation.

01.102 Special Topics in Civil Engineering
(Prereq. Permission of instructor) **4 Q.H.**

This is a special course within the field of civil

engineering initiated by the appropriate discipline committee and approved by the department.

01.105 Civil Engineering Systems **4 Q.H.**
(Prereq. 10.153)

The course covers application of system synthesis and optimization techniques for civil engineering students; Calculus method, linear programming, network analysis and dynamic programming.

01.116 Engineering Measurements 4 Q.H.

(Prereq. 10.151 and 11.204)

The course focuses on the methods and instruments used in obtaining engineering measurements required in land surveying and their applications in topographic mapping, leveling, traverses, horizontal and vertical curves, and earthwork.

01.117 Engineering Measurements**Laboratory****2 Q.H.***

(Prereq. 09.108)

Taken simultaneously with 01.116. The course concentrates on field problems, illustrating the lecture material in 01.116 with computer applications.

01.120 Fluid Mechanics**4 Q.H.**

(Prereq. 10.115, 02.116)

An introduction to fluid mechanics, both statics and kinematics, topics normally include properties of fluids; pressure distribution on submerged bodies; momentum, continuity, and energy formulations; resistance to flow in closed conduits; continuous and local losses; dimensional analysis and dynamic similitude.

01.122 Hydraulic Engineering**4 Q.H.**

(Prereq. 01.120)

Topics normally include open channel flow, including flow formulas, specific energy, hydraulic jump, water surface profiles in varied flow, channel controls, sewer system design considerations; hydrology, including storm drainage design, unit hydrograph, reservoir sizing; pipe network analysis and pump characteristics.

01.135 Construction Engineering**4 Q.H.**

(Juniors and seniors only)

The course focuses on organizational aspects of the construction process: job scheduling and resource allocation using CPM, cost estimating and bidding, construction productivity, specifications, progress reporting and job control.

01.136 Highway Engineering**4 Q.H.**

(Prereq. 01.116, 01.178, and 01.122)

A general approach to highway engineering, topics normally include statics of particles and rigid bodies in two and three dimensions; analysis of internal forces in trusses and beams; centroids and centers of gravity of lines, area and volumes; moments of inertia of areas and masses.

01.140 Structural Mechanics I**4 Q.H.**

(Prereq. 11.204; 10.153 concurrently)

Topics normally include statics of particles and rigid bodies in two and three dimensions; analysis of internal forces in trusses and beams; centroids and centers of gravity of lines, area and volumes; moments of inertia of areas and masses.

01.141 Structural Mechanics II**4 Q.H.**

(Prereq. 01.140)

Course material includes analysis of stress and strain; mechanical properties of materials; elastic analysis of stresses and deformations of members subject to axial load, torsion, shear and moment; introduction to column behavior.

01.142 Structural Mechanics III**4 Q.H.**

(Prereq. 01.141)

Continuation of 01.141. Topics include torsion, general bending, curved members, shear flow, shear center, combined stresses including elastic and plastic behavior, continuation of column buckling, and introduction to yield and fracture criteria.

01.143 Structural Analysis I**4 Q.H.**

(Prereq. 01.141)

Topics normally include review of reactions, shear and bending moment diagrams, bar forces in trusses; influence lines for statically determinate structures; deflections by virtual work and moment area methods; and analysis of indeterminate structures by consistent deformations, slope deflection and moment distribution.

01.150 Concrete Design I**4 Q.H.**

(Prereq. 01.143)

Course material includes review of mechanical properties of steel and concrete; behavior and design of reinforced concrete beams for shear, moment and bond; design of stocky columns for axial load and moment. Emphasis of course is on strength design.

01.152 Concrete Design II**4 Q.H.**

(Prereq. 01.150)

Topics normally include design of slender columns, foundations, multistory buildings with one-way and two-way floor systems; introduction to prestressed concrete.

01.160 Structural Design I**4 Q.H.**

(Prereq. 01.143)

The course focuses on design of steel members subject to tension, compression, bending and combinations of loading; design of connections, braced frames and rigid frames.

01.161 Structural Design II**4 Q.H.**

(Prereq. 01.160)

Topics normally include design of steel plate girders, composite construction in bridges and buildings, plastic analysis and design, and the design of high-rise buildings subject to lateral loads.

01.174 Foundation Engineering**4 Q.H.**

(Prereq. 01.178)

Topics normally include subsurface explorations, determination of soil bearing capacity, design of shallow foundations, pile and caisson foundations, design of retaining walls; anchored bulkheads and braced sheeting, and other selected topics on foundation design and construction.

01.175 Geotechnology 4 Q.H.

(Prereq. 01.141 and 01.180)

An introduction to the geological sciences as they apply to civil engineering practice, the course focuses on the effects of significant geological features on location, design, construction, operation, and maintenance of engineering projects.

01.178 Soil Mechanics 4 Q.H.

(Prereq. 01.141 and 01.120)

Course material includes soil classification, soil-water phase relationships, ground water seepage, consolidation theory, strength properties of soils; stress distributions in soils due to surface loads, slope stability.

01.179 Soil Mechanics Lab 2 Q.H.*

(Taken concurrently with 01.178)

The course focuses on laboratory exercises including soil classification, seepage, shear strength, consolidation, and triaxial testing.

01.180 Materials 4 Q.H.

(Prereq. 12.115)

The course focuses on the structural, chemical, and mechanical properties of materials of importance to civil engineers; fundamental nature of matter; significance of phase transformations; control of microstructure; mechanisms of failure of materials.

01.193 Environmental Engineering I 4 Q.H.

(Prereq. 12.115 and 01.120)

The course focuses on engineering approaches to protection and management of the environment. Topics include assessment of environmental quality; introduction to water and wastewater technology, air pollution control, and solid waste management.

01.194 Environmental Engineering II 4 Q.H.

(Prereq. 01.193)

The course concentrates on development of fundamental physical, chemical and biological phenomena of water and wastewater systems with engineering applications in water technology from source to ultimate disposal.

01.195 Environmental Engineering III 4 Q.H.

(Prereq. 01.122 and 01.194)

The course concentrates on engineering applications and special topics in water and wastewater technology including pumping, chemical feeding, treatment plant design, and land disposal.

01.196 Environmental Design 4 Q.H.

(Prereq. 01.122 and 01.194; 01.195 to be taken concurrently)

The course provides a combination of individual design projects and environmental laboratory sessions affording the student the opportunity to develop a sound engineering approach to the solution of problems in water and wastewater

management. One design session and one laboratory session per week.

01.197 Survey of Environmental Problems 4 Q.H.

(Prereq. Nonengineers only; permission of instructor)

A survey of problems associated with man's use of the environment, course material includes interrelationship of the air-water-land complex, with emphasis on ecological stresses produced, and methodologies for assessing and controlling man's environmental impact.

01.206 Applied Probability Theory for Civil Engineers 4 Q.H.

(Prereq. 10.153)

Topics normally include applications of probability theory to civil engineering problems, probabilities of events, random variables and distributions, derived distributions, expectation; common probability models, and an introduction to statistics.

01.207 Technology Assessment 4 Q.H.

(Prereq. Permission of instructor)

The course focuses on fundamental concepts of technology assessment, such as the market system, externalities, decision analysis, risk acceptance, the problems of scale, and technological monocultures. The unintended impacts or the higher-order effects of technologies are stressed throughout the course.

01.210 Legal Aspects of Civil Engineering 4 Q.H.

Topics normally include description and evaluation of various types of contracts for engineering services and construction, procedures and formats for submitting bids, procedures for filing claims, and legal steps to avoid liabilities.

01.234 Transportation Analysis and Planning 4 Q.H.

(Prereq. Seniors only)

Course material includes establishment of planning framework; demand modeling from regional economy to transportation network assignments; mode selection; technical and economic evaluation; and current issues including environmental assessment, transportation systems management, citizen participation and planning in developing countries.

01.244 Structural Analysis II 4 Q.H.

(Prereq. 01.143)

The course concentrates on matrix analysis of all classes of indeterminate structures using both flexibility and stiffness approaches; computer applications to analysis of framed structures.

01.245 Structural Analysis III 4 Q.H.

(Prereq. 01.143)

This course is a continuation of 01.143. Topics normally include slope-deflection; moment dis-

tribution; effects of axial loads; symmetry; anti-symmetry; nonprismatic members; approximate methods of lateral load analysis, and shear wall action.

01.259 Air Pollution**4 Q.H.**

The course focuses on theory and practice related to engineering management of air resources; microclimate and dispersion of pollutants; atmospheric chemistry; air pollution in-

strumentation; control of gaseous and particulate emissions; design of air pollution control systems; biological and chemical aspects of air pollution with emphasis on the toxicological aspects of the environment; physiological effects of aerosols; analysis of organic and inorganic constituents of the atmosphere; and rationale for establishment of air quality criteria and standards.

Mechanical Engineering

The course descriptions listed under Mechanical Engineering are intended to show the general scope of the subject that will be covered. Since courses are continuously updated, specific topics or methods of approach may vary from term to term.

02.116 Dynamics**4 Q.H.**

(Open to civil engineering majors)

(Prereq. 01.140)

Topics include kinematics, translating reference frames, mass moments of inertia, plane motion of rigid bodies, and instantaneous equations of motion.

02.130 Thermodynamics I**4 Q.H.**

(Prereq. 10.153)

Thermodynamics is the study of systems in which energy and its flow across systems boundaries are important. In this first course, energy, heat, and work are defined and used in the First Law of Thermodynamics. Other thermodynamic properties and equations of state are introduced, with emphasis on tabular and graphical forms for simple compressible systems, and on the ideal gas. Phases and phase transitions are briefly discussed and energy analysis of both open and closed systems is examined. The Second Law of Thermodynamics and the property entropy are introduced, and their macro- and microscopic implications discussed. Emphasis, however, is placed on the macroscopic consequences of irreversibility and the limitation this places, through the Second Law, on the behavior of engineering systems. This course concentrates on basic concepts and their proper application to representative engineering systems.

02.131 Thermodynamics II**4 Q.H.**

(Prereq. 02.130)

Course includes study of vapor cycles for use with both fossil and nuclear fuels; consideration of various gas power cycles, including the Brayton and regenerative gas turbine cycles, and the Otto and Diesel cycles for reciprocating internal combustion engines. The concept of availability is introduced, integrated with the study of the above cycles, and followed by the thermodynamics of nonreacting mixtures, particularly for air-water vapor mixtures.

02.132 Introduction to Combustion**4 Q.H.**

(Prereq. 02.131 and 12.115)

An introduction to the science and technology of combustion. The fundamental principles of thermochemistry, chemical equilibrium, and rates of reaction are reviewed and related to combustion processes in heat engines. The principles of combustion waves are introduced, and the mechanisms of various physical and chemical processes in combustion are discussed.

02.134 Direct Energy Conversion**4 Q.H.**

(Prereq. 02.131 and 12.115)

This course is concerned with means for converting heat directly into electrical energy. The operating principles of such devices, principally magnetohydrodynamic power generators and fuel cells, are discussed. Other topics, such as energy storage, thermionic converters, and irreversible thermodynamics as a basis for a unified theory of energy conversion may be included.

02.145 Design Fundamentals**4 Q.H.**

(Prereq. 02.168)

The course focuses on engineering design analysis of dynamically loaded machine elements. Topics include stress concentration; contact and impact stresses; thorough treatment of fatigue factors in design (combined loading and statistical considerations); and environmental factors in design, creep, temperature, and atmosphere.

02.146 Mechanical Engineering Design**4 Q.H.**

(Prereq. 02.145)

The course offers project(s), using system approach, which involve all aspects of mechanical engineering. This course is intended to provide students an opportunity to correlate previous courses in design of mechanical systems.

02.147 Engineering Design**4 Q.H.**

(Prereq. 02.168)

This course is intended for students who take

only one course in design. Design projects vary from year to year, but in general expand and correlate previous courses in design of mechanical systems.

02.148 Design and Analysis **4 Q.H.**
(Prereq. 02.146; cannot be taken simultaneously with 02.193 or 02.194)

A project must be of a design nature and must be approved by the faculty member under whom the student will work. A formal report must be submitted to the student's faculty supervisor at the end of the quarter.

02.149 Engineering Analysis **4 Q.H.**
(Prereq. 02.168)

The course focuses on the numerical and experimental methods in stress analysis. Analytical techniques include an introduction to the finite element method. Experimental methods include, among others, strain gauge techniques and photoelasticity.

02.150 Heat Transfer I **4 Q.H.**
(Prereq. 02.130, 02.155, and 10.156)

The theories which describe conduction, convection, and thermal radiation heat transfer mechanisms are studied. Steady-state and transient conduction problems are discussed in rectangular, cylindrical, and spherical coordinate systems. Electrical analogy and numerical methods are also considered. Convective heat transfer mechanisms are studied and the concept of the Nusselt-Reynolds Number correlation is introduced. Description of thermal radiation heat transfer between surfaces is discussed.

02.155 Fluid Mechanics I **4 Q.H.**
(Prereq. 02.130, 02.167, and 10.155)

The course offers an introduction to the concepts of fluid mechanics: fluid statics, including pressure distribution and forces on submerged surfaces; differential and integral formulations of conservation of mass, momentum, and energy with emphasis on control-volume applications; pipe flow with consideration of head loss, use of the Moody diagram, and analysis of pipe networks.

02.156 Fluid Mechanics II **4 Q.H.**
(Prereq. 02.155)

Topics include velocity potential and stream functions; circulation and Kelvin's theorem; two-dimensional, steady irrotational incompressible flow; Karman-Pohlhausen method applied to two-dimensional boundary layers.

02.157 Fluid Machinery **4 Q.H.**
(Prereq. 02.155)

The course focuses on the general principles of turbomachinery: definitions of efficiency and a discussion of the requirements for similitude; machine selection to suit particular applications. Both liquid and gas handling machines are examined, and performance limits imposed by cavitation and choking are considered.

02.163 Mechanics **4 Q.H.**
(Prereq. Electrical engineering majors only)

The course focuses on the study of kinematics and kinetics of rigid bodies, instantaneous equations of motion, work and energy, and impulse and momentum.

02.165 Mechanics I **4 Q.H.**

Topics include the concept of vector representation of force and moment; equivalent force systems; centroids and centers of gravity, distributed forces; equations of equilibrium; free body diagrams; applications to trusses, pin-connected frames and beams; and elementary concepts in friction.

02.166 Mechanics III **4 Q.H.**
(Prereq. 02.165)

Development of problem-solving ability in the fundamentals of dynamics. Topics include kinematics of particles, kinematics of rigid bodies (nonrotating frames), mass moments of inertia, kinetics of particles and rigid bodies (plane motion only) using force, mass, and acceleration.

02.167 Mechanics II **4 Q.H.**
(Prereq. 02.165)

Topics include concept of stress and strain; principal stresses; Mohr's circle, stress-strain diagrams; moment of inertia of areas; stress and deformation of simple members under axial and torsional loads, and stresses in symmetrical beam bending.

02.168 Mechanics IV **4 Q.H.**
(Prereq. 02.167)

Topics include asymmetrical bending; analysis of determinate and indeterminate beams by various methods; and buckling of columns.

02.169 Intermediate Strength of Materials **4 Q.H.**
(Prereq. 02.168)

Topics include analysis of curved beams, rings, and thick-walled pressure vessels; introduction to plane elasticity problems using rectangular and polar coordinate systems.

02.171 Mechanical Vibrations **4 Q.H.**
(Prereq. 02.166)

The course focuses on the study of one-, two-, and multi-degrees of freedom systems using classical, energy, Laplace, mobility, matrix, and computer techniques. A laboratory is included in this course.

02.172 System Analysis and Control **4 Q.H.**
(Prereq. 02.166)

This course provides students the opportunity to gain a theoretical background for analyzing and designing a linear control system. System modeling, linear approximations and their limitations, transfer functions, and block diagramming; applications of the Laplace transform; transient and frequency response; and stability, frequency domain, and root locus techniques are discussed.

02.174 Design for Space Applications 4 Q.H.
(Prereq. 02.166)

The course includes an exploration of Keplerian motion and transfer dynamics using Battin's solution. Optimization of transfer dynamics with respect to our solar system, and mass optimization, boost, and reentry dynamics are studied. System design is used throughout the course.

02.176 Dynamics

(Prereq. 02.166)

Continued development of problem-solving ability in dynamics. Topics include kinematics of rigid bodies using rotating frames, kinetics of particles and rigid bodies using work and energy, introduction of Lagrange's equations, kinetics of particles and rigid bodies using impulse and momentum, and simple gyroscopic motion.

02.192 Measurements and Analysis 4 Q.H.*
(Prereq. 02.130 and 02.167)

Lecture subjects include design of experiments, instrumentation, measurements, data analysis, and report writing. Students apply the principles developed in class to a variety of laboratory experiments. Written reports are required.

02.193 Mechanical Engineering Project I(Prereq. 02.192; cannot be taken simultaneously with 02.148 or 02.194) **4 Q.H.***

The project may be of an analytical or experimental nature. It must be approved by the faculty member under whom the student will work, and a formal report must be submitted to the student's faculty supervisor at the end of the quarter.

02.194 Mechanical Engineering Project II(Prereq. 02.192; cannot be taken simultaneously with 02.148 or 02.193) **4 Q.H.**

If a project initiated under course 02.193 is large enough in scope, a second project course may be taken with the approval of the faculty supervisor. A formal report must be submitted to the student's faculty supervisor at the end of the quarter.

02.196 Materials Science 4 Q.H.
(Prereq. 02.130 and 12.115)

An introduction to materials science for engineers, emphasizing the structure-property-function relationship. Topics include crystallography, structure of solids, imperfections in crystals, phase equilibrium, phase transformations, diffusion, and physical properties. A laboratory is included in this course.

02.197 Mechanical Behavior of Materials 4 Q.H.
(Prereq. 02.196 and 02.167)

The study of the physical basis for the mechanical behavior of solid materials, including elasticity, plasticity, viscoelasticity, and fracture. Application is made to structural alloys and polymers.

02.198 Materials Processing 4 Q.H.
(Prereq. 02.196)

The course offers a survey of the essential features and materials limitation of various methods for processing materials. Topics include heat treatment (ferrous and nonferrous alloys), casting, forming, joining, and machining.

02.199 Materials Science 4 Q.H.
(Prereq. 02.130 and 12.115)

An introduction to materials science for engineers, emphasizing the structure-property-function relationship. Topics include crystallography, structure of solids, imperfections in crystals, phase equilibrium, electrical behavior of metals and semiconductors.

02.232 Engineering Materials 4 Q.H.
(Prereq. 02.196)

This course is concerned with the utilization of materials science in the application and selection of materials. Topics include reactions with environment, i.e., oxidation and corrosion; materials selection criteria; and materials engineering case studies dealing with materials selection and failure analysis.

02.233 Thermodynamics of Propulsion 4 Q.H.
(Prereq. 02.131 and 12.115)

The course focuses on application of the principles of thermodynamics and fluid mechanics to understanding the behavior of propulsion devices. Emphasis is on air-breathing engines such as the aircraft gas turbine and the ramjet. Various engine components, such as inlets, diffusers, compressors, combustors, turbines, and nozzles are discussed.

02.236 Nuclear Engineering I 4 Q.H.*
(Prereq. 02.131)

The course offers a study of nuclear physics emphasizing atomic and nuclear structure, radioactive decay, and nuclear reactions, with particular attention to fusion and fission. The course also examines health physics, nuclear instrumentation, and the production and uses of radioactive isotopes. A general comparison of thermal, fast, and broader reactor types is made prior to a discussion of neutron interactions and their slowing down. The four-factor formula and diffusion equation are developed and applied to one-group theory for bare and reflected thermal reactors. Flux shaping as well as energy production and distribution within the core are discussed.

02.237 Nuclear Engineering II 4 Q.H.
(Prereq. 02.236)

The course focuses on development of two-group theory for thermal reactors and consideration of the physics and safety of fast reactors. Effect of reactivity change, either intentional or accidental, as well as changes due to tempera-

ture, fission product build up, xenon build-up after shutdown, and fuel depletion are discussed. Reactor design considerations involving the interrelationship of reactor physics, reactor engineering control, distribution of power, and fuel cycle management are considered.

02.240 Internal Combustion Engines 4 Q.H.
(Prereq. 02.131)

The concepts and theory of operation of internal combustion engines are presented based upon the fundamental engineering sciences of thermodynamics, gas dynamics, heat transfer, and mechanics. The design and operating characteristics of conventional spark-ignition, compression-ignition, Wankel, and stratified charge spark-ignition engines are discussed. Performance analysis using Newhall-Starkman charts and computer programs are included.

Electrical Engineering

The course descriptions listed under Electrical Engineering are intended to show the general scope of the subject that will be covered. Since courses are continuously updated, specific topics or methods of approach may vary from term to term.

03.101 Discrete Systems 4 Q.H.
(Prereq. 09.108)

Topics include historical review and future perspectives of discrete systems; representation of digital signals, quantization; introduction to digital filters, moving average filters; Z-transforms, inverse Z-transforms; recursive digital filters, stability considerations, steady-state and transient response; introduction to non-recursive techniques, the discrete Fourier transform, the fast Fourier transform; applications to computation of systems transfer functions.

03.111 Circuits and Systems I 4 Q.H.
(Prereq. 10.152 and 11.205)

The course covers circuit elements (linear, non-linear, time-invariant, and time-varying), sources (independent and controlled), Kirchhoff's laws, Tellegen's theorem, Thevenin's theorem, network topology, mesh and nodal analysis.

03.112 Circuits and Systems II 4 Q.H.
(Prereq. 03.111)

Topics include linearity and time-invariance, system function, forced and force-free response of networks and L.T.I. systems, singularity response, partial fraction expansion, "Pre-box" concept, and convolution.

03.113 Circuits and Systems III 4 Q.H.
(Prereq. 03.112)

Topics include Thevenin's theorem revisited, magnitude and phase plots, resonance, two-port networks, energy and power, and convolution.

02.258 Gas Dynamics 4 Q.H.
(Prereq. 02.155)

Course focuses on application of the principles of fluid mechanics to compressible flows. Wave propagation and the concepts of sound speed and Mach number are discussed. The emphasis is on one-dimensional steady flows with an examination of the effects of area change, friction, and heat transfer, including a consideration of normal shock waves and the possibility of choking.

02.260 Heat and Mass Transfer 4 Q.H.
(Prereq. 02.150)

Heat exchange design is explored by both the logarithmic mean temperature difference (LMTD) and the effectiveness-NTU (number of transfer units) methods. The radiant heat transfer, the nature of solar radiation, and the design of a flat plate solar collector are discussed.

03.119 Circuits and Systems A 6 Q.H.
(Prereq. 10.152 and 11.205)

Includes the material covered in course 03.111, Circuits and Systems I, plus half of the material in course 03.112, Circuits and Systems II.

03.120 Circuits and Systems B 6 Q.H.
(Prereq. 03.119)

Completes the material in 03.112, Circuits and Systems II, plus the material in course 03.113, Circuits and Systems III.

03.122 Circuits and Systems IV 4 Q.H.
(Prereq. 03.113)

The course focuses on basic concepts and techniques of linear system theory. Review of system theory in terms of the convolution integral; waveform representation in terms of the Fourier series, Fourier Integral, and the bilateral Laplace transform; system concepts in terms of the function and their application to filters and feedback systems.

03.131 E.E. Laboratory I-Measurements 2 Q.H.*
(Prereq. 03.111)

The course covers basic electrical measurements, report writing, use of standard laboratory instruments including digital voltmeters, oscilloscopes, and bridges.

03.132 E.E. Laboratory II-Circuits and Systems 2 Q.H.*
(Prereq. 03.112)

The course includes experiments relevant to the Circuits and Systems courses, together with more work in measurements.

03.133 E.E. Laboratory III-Devices 2 Q.H.*
(Prereq. 03.141)

The course includes introduction to the digital computer, electro-optics, terminal characteristics of active devices.

03.134 E.E. Laboratory IV 2 Q.H.*
(Prereq. 03.142 and 03.161)

The course includes logic circuits, design and testing of active circuits, microwave studies, control systems, digital computation.

03.146 Electronics A 4 Q.H.
(Prereq. 03.113; not open to students who have taken 03.141, 03.142, and 03.144)

This first course in electronics stresses the use of transistors in digital integrated circuits. Topics include fabrication and processing of integrated circuits, characteristics of the theoretical physical junction, Ebers-Moll model for bipolar junction transistors, characteristics of bipolar and field-effect devices, basic digital inverters and logic gates, and various logic families (CMOS, TTL, MOS and $I^2\Lambda$).

03.147 Electronics B 4 Q.H.
(Prereq. 03.146 and 03.122; not open to students who have taken 03.141, 03.142, and 03.144)

The second course in electronics stresses the use of transistors in the design of analog circuits. Much of the emphasis is on integrated circuit devices. Topics covered include biasing, linearized incremental models involving controlled sources, load line techniques, early effect, use of signal flowgraphs for solving circuits, frequency response and gain calculations for single stage and cascaded stages, and differential and operational amplifiers.

03.148 Electronics C 4 Q.H.
(Prereq. 03.147; not open to students who have taken 03.141, 03.142, and 03.144)

The third course in electronics continues the development of analog electronic circuits. Topics include concept of feedback, open and closed loop gain, effect of feedback on impedance levels and frequency response, limitations on the performance of operational amplifiers, stability and compensation in feedback systems, analog circuit applications, and an Analog/Digital system design example.

03.151 E.E. Laboratory I-A 1 Q.H.*
(Prereq. 11.205)

The course focuses on basic electrical measurements, report writing, and use of laboratory instruments, including digital voltmeters, oscilloscopes, and bridges.

03.152 E.E. Laboratory I-B 1 Q.H.*
(Prereq. 03.151)

A continuation of 03.151, E.E. Laboratory I-A.

03.153 E.E. Laboratory II-A 1 Q.H.*
(Prereq. 03.152)

Experiments in conjunction with courses 03.111 and 03.112, Circuits and Systems I and II. Additional experiments in measurements.

03.154 E.E. Laboratory II-B 1 Q.H.*
(Prereq. 03.153)

Continuation of 03.153 in conjunction with courses 03.113 and 03.122, Circuits and Systems III and IV.

03.155 E.E. Laboratory III-A 1 Q.H.*
(Prereq. 03.154)

Introduction to the digital computer and logic circuits, as well as experiments tied in with 03.146 and 03.147, Electronics A and B.

03.156 E.E. Laboratory III-B 1 Q.H.
(Prereq. 03.155)

Continuation of 03.155 with some experiments relevant to 03.161 and 03.162, Field Theory I and II.

03.161 Electromagnetic Field Theory I 4 Q.H.
(Prereq. 10.155)

The course focuses on definition and representation of scalar and vector fields. Coordinate systems; elements of vector calculus; definition of the concepts of gradient, divergence, curl, and the "del" operator; free-space electrostatics; definition of the electric field intensity; the scalar potential; solution to Poisson and Laplace equations; macroscopic model of dielectric materials; the electric polarization and the electric flux density vector; boundary conditions; Lorentz force; free space magnetostatics; magnetic vector potential and solution to the "vector" Poisson equation; macroscopic model of magnetic materials; magnetization and magnetic field intensity; boundary conditions.

03.162 Electromagnetic Field Theory II 4 Q.H.
(Prereq. 03.161)

Topics include generalization of the Maxwell equations to the case of time-varying fields; Faraday induction law; wave equations and the plane wave solution; Poynting theorem and the concept of energy stored by the fields; reflection and refraction of plane waves; time-harmonic wave equations for the scalar and vector potentials; time-harmonic form of retarded potentials; radiation from dipole; motion of charged particles in fields; magnetoionic media; elementary discussion of plasma physics and M.H.D.

03.175 Electromechanical Dynamics 4 Q.H.
(Prereq. 03.113 and 03.161)

The course offers review of the Maxwell equations and quasistatic approximations, electric and magnetic energy concepts, state-variable formulation of electromechanical coupling. Applications to elementary energy conversion devices, singly and doubly excited magnetic devices with mechanical, translational, and rotational elements. Generalized rotating electro-

magnetic energy convertors, circuit-model concepts, applications to selected extant rotating machines, i.e., commutator machines and a-c machines; dynamic response to various stimuli are studied.

03.178 Machines and Systems 4 Q.H.
(Prereq. 03.177)

The course offers a detailed investigation of the operating principles of synchronous machines, synchronous motor and generator power-angle characteristics, machine dynamics, machine and power system stability.

03.177 Introduction to Electric Machinery 4 Q.H.
(Prereq. 03.161)

Topics include review of magnetic field, energy, and energy conversion concepts. Transformers and their circuit representations; application of energy conversion concepts to basic rotating machines and exploration of the Theory of Induction, synchronous, and d-c machines. Limitations in actual machines will be discussed.

03.178 Transients in Electric Power Systems 4 Q.H.

Introduction to the response of various elements of a power network to the transients caused by lightning, switching, and faults. Some of the equipment to be considered in terms of transient response include the transmission line, lightning arresters, fuses, transformers, and circuit breakers.

03.183 Electrical Engineering I 4 Q.H.
(Prereq. 10.152; not open to electrical engineering majors)

Introductory course to electric circuit theory covers Kirchhoff's laws, loop and nodal analysis, Thevenin's theorem, power and energy, exponential excitation and the system function.

03.184 Electrical Engineering II 4 Q.H.
(Prereq. 03.183; not open to electrical engineering majors)

Properties and analysis of electronic devices, circuits, and systems; elements of control systems; principles of energy conversion. Emphasis on each topic determined according to major discipline.

03.185 Power Systems and Controls 4 Q.H.
(Prereq. 03.183)

Basic concepts of electromechanical energy conversion stressing the terminal characteristics and operation of d-c and a-c machines, elements of power distribution systems, and concepts of feedback control, with application to power systems and plant control.

03.186 Basic Electrical Instrumentation 4 Q.H.*
(Prereq. 03.183)

Basic electrical measurement devices including ammeters, voltmeters, oscilloscopes, and bridges; instrumentation techniques such as

direct measurement, comparative measurement, and analog methods. Application to non-electrical disciplines is included.

03.187 Modelling Techniques 4 Q.H.
(Prereq. 03.183 and 03.184; also FORTRAN IV programming)

Introduction to the concept of modelling techniques to represent physical, biological, and social systems; electrical analogs and use of analog computers; introduction to digital modelling and the use of digital computation.

03.191 Introduction to Digital Computers I: Design and Organization 4 Q.H.
(Prereq. 11.205 and 10.153)

Introduction to the basic components of digital systems and methods for their analysis and design: logic gates and flipflops, Boolean algebra, and combinational and sequential circuits. Integrated circuit logic families and functional building blocks: registers, counters, decoders, multiplexers, and memories. Data representation and coding techniques. Register-transfer language for specification of instruction sets, processor organization, and logic design. Case study of a specific central processor instruction set implementation. Assembly language programming techniques and introduction to system software.

03.192 Introduction to Digital Computers II: Fundamentals of Computation Structures 4 Q.H.
(Prereq. 03.191)

Central processor alternatives: instruction formats, addressing modes, bus structures, arithmetic units, timing analysis, and stacks. Algorithms for arithmetic operations with various data representations. Input-output and memory organization. Introduction to microprocessors. This course, like its predecessor 03.191, is oriented toward the design, not just the comprehension, of digital systems likely to be encountered by the electrical engineer.

03.200 Special Topics 4 Q.H.
(Prereq. Permission of Department)

Topics covered vary from term to term depending on the interests of the Department and the students.

03.204 Microcomputer-Based Design 4 Q.H.
(Prereq. 03.192)

Course material includes characteristics of microprocessor applications; external and internal architecture of a specific microprocessor family; logic design of a simple microcomputer. Instruction set, timing cycles, I/O port selection and interrupt-handling; software design for keyboard monitor, breakpoint facility and multiplexed displays. Application design studies of real-time interfaces to electromechanical devices. Evolutionary trends in LSI micro-

processors and memory systems. Integrated hardware and software design projects using laboratory microcomputers are an integral part of this course, which is designed primarily for electrical engineers.

03.218 Control System Theory 4 Q.H.
(Prereq. 03.144)

Control system concepts; goals and basic components. Review of time and frequency domain techniques. Classical control system theory; error analysis for different systems. Analysis of second- and third-order systems. Stability and relative stability using root locus and Nyquist diagrams. The Nichols chart. Compensation, application of computer technology to control systems analysis and design. State-variable description of dynamic systems. The state equations and the fundamental analog realization of the standard equations. Properties of the state-transition matrix. Optimal systems. Introduction to sampled data systems. The Z-transform as an analog to the Laplace transform.

03.221 Electrical Power Systems I 4 Q.H.
(Prereq. 03.113)

This course, together with 03.222, Electrical Power Systems II, is designed to give a broad view of the structure of those electric systems having the primary function of energy transfer and especially those which function to transfer large quantities of energy. The functions of the various system elements are described and their significant characteristics are investigated briefly. The interrelation between elements is treated.

03.222 Electrical Power Systems II 4 Q.H.
(Prereq. 03.221)

A continuation of Electrical Power Systems I. Problems such as voltage control, protection, economics, and planning which relate to the system as a whole. Taken with the previous course, it may provide a general background for more intensive studies of electric power systems.

NOTE: A student may take both electives in sequence or may take the first course only.

03.233 E.E. Power Laboratory I 2 Q.H.*

The course covers experimental work with polyphase power equipment, power measurements, polyphase power rectification, steady-state and dynamic operation modes of polyphase induction motors, power transformers and symmetrical component analysis of unbalanced loading of transformers, analog computer.

03.234 E.E. Power Laboratory II 2 Q.H.*
(Prereq. 03.246)

The course covers experimental work with rotating machinery and systems; steady-state and dynamic modes of operation of the commutator and synchronous machines; system study involving synchronous machines; selected experi-

ments in control systems; network analyzer studies.

03.237 Senior Project Laboratory I 2 Q.H.*
(Prereq. 03.142 and 03.162)

In this course students work with a faculty adviser on some term project, either experimental or theoretical.

03.238 Senior Project Laboratory II 2 Q.H.*
(Prereq. 03.142 and 03.162)

This course may be a continuation of the project started in 03.237 or it may be a new project. Again, the student works closely with a faculty adviser.

03.241 Selected Topics In Electronics 4 Q.H.
(Prereq. 03.147)

This course concerns (1) the description and application of those electronic devices (e.g., thyristors, photodiodes, etc.) not covered in depth in the regular electronics sequence; (2) electronic subsystems (e.g., AFC, shift registers, etc.); (3) systems (e.g., navigation systems, telephone switching systems, etc.). Most of the presentations are made by students on topics of their choice, but there are also lectures by the instructor as well as by invited speakers.

03.242 Theory and Technology of Semiconductor Devices I 4 Q.H.*
(Prereq. 02.196)

This course comprises a closely coupled lecture and laboratory series. Topics covered include technology and physics of the planar diffusion process, electronic properties of homogeneous semiconductors, inhomogeneities and junctions (Fermi potential diagrams, equilibrium at an abrupt discontinuity, and the behavior of a junction under applied bias), and the junction transistor.

03.243 Theory and Technology of Semiconductor Devices II 4 Q.H.*
(Prereq. 03.242)

This course is a continuation of 03.242. Material covered includes introduction to unipolar transistor action, introduction to surface effects, the MOS-FET, and a discussion of noise problems encountered in semiconductor devices.

03.245 E.E. Power Laboratory A 1 Q.H.*

03.246 E.E. Power Laboratory B 1 Q.H.*

03.251 Communication Theory 4 Q.H.
(Prereq. 03.122)

Topics include signal analysis including signal classes, Fourier methods, correlation functions, amplitude density, and power spectra, amplitude modulation, Hilbert transform applications, analytic signal and complex envelope.

03.252 Fundamentals of Communication Systems 4 Q.H.
(Prereq. 03.251)

Topics include frequency modulation, signal-to-noise ratios in AM and FM, multiplexing, sampling theory, pulse modulation systems, data transmission, signal space. Correlation detection, probability, random variables and random processes, information theory and coding.

03.281 Wave Transmission and Reception 4 Q.H.
(Prereq. 09.108 and 03.161)

Topics include analysis of radiation, transmission, and reception of electromagnetic and acoustic waves using graphical and digital computer techniques. Design of distributed systems, antennas, microphones, loudspeakers, and sonar transducers.

03.282 Advanced Topics in Electromagnetic Field Theory 4 Q.H.
(Prereq. 03.162)

This course is a continuation of the required courses in field theory. Topics covered include microwave and waveguide structures, careful development of electromagnetic energy and force concepts, and an introduction to radiation and antenna theory.

03.281 Machine Language and Assembly Language Programming 4 Q.H.
(Prereq. 03.191)

This course focuses on study of the machine and assembly languages of a selected digital computer. Machine representation of numbers, characters, and instructions. Machine language programming; flow of control, relocatability, input/output instructions, addressing, and instruction modification. Symbolic assembly language; macros, literals, and pseudo-instructions. Several programming projects are an integral part of the course.

03.282 Programming Systems 4 Q.H.
(Prereq. 03.281)

Continuation of 03.281. Assemblers, searching and sorting techniques, macro-processors; loaders. High-level languages and an introduction to their compilation. Introduction to operating systems. Programming projects are an integral part of the course.

03.285 Applied Discrete Analysis 4 Q.H.
(Prereq. 10.155)

The course offers an introduction to elementary number theory, modern algebra, combinatorial mathematics and discrete probability theory, including such topics as prime numbers, least common multiple, greatest common divisor, Euclid's algorithm, continued fractions, congruences, groups, rings, fields, Boolean algebra, combinations and permutations, generating functions, random variables, and Markov chains. The material in this course is widely applicable to the field of computer science.

03.292 Mathematical Techniques in Electrical Engineering I 4 Q.H.
(Prereq. 10.155)

The goals of this course are (1) to introduce the basic precepts of the Theory of Complex Variables; (2) to organize and codify the student's understanding of analysis (i.e. the properties of analytic functions); (3) to augment the student's sensitivity to questions of rigor and the limitations on the applicability of fundamental techniques; (4) to provide an appreciation of the glories of Nineteenth Century mathematics and those who contributed to it; (5) to suggest applications of the subject matter without being an applications course per se.

Topics, depending on time and student background, include complex numbers and functions of a complex variable; infinite series, uniform continuity, and convergence; Cauchy theorems and formulas; the calculus of residues; conformal representation, integral functions; and special functions.

03.293 Mathematical Techniques in Electrical Engineering II 4 Q.H.
(Prereq. 10.155 or equiv.)

Topics include matrix notation and development of matrix algebra. The solubility of sets of linear equations; determinants, linear transformations, invariance, quadratic forms and eigenvalues. Illustrative applications of matrix techniques for the formulation and solution of problems are drawn from the realm of circuit theory, probability theory, and engineering physics.

03.295 Numerical Methods and Computer Applications 4 Q.H.
(Prereq. 09.108 and 03.122)

The course focuses on presentation of numerical techniques used in solving scientific and engineering problems with the aid of digital computers. Topics covered include modeling and simulating of deterministic and probabilistic systems, theory of interpolation, iteration methods, numerical solution of ordinary and partial differential equations, signal detection, and use of libraries of scientific subroutines. Representative problems are chosen for solution on a digital computer.

03.296 Digital Techniques 4 Q.H.
(Prereq. 03.146 and 03.191)

This course attempts to supplement the topics covered in the electronics sequences and the introduction to digital computer courses. Topics may vary from year to year and may include details of semiconductor integrated gate circuits, flip flops, clocks, counters, memory units, A/D and D/A conversions, coding, and the fundamental techniques of digital data transmissions.

03.417 Principles of Communication**Systems I****4 Q.H.**

(Prereq. 03.413)

Topics include signal analysis using Fourier methods; noise in communication systems; frequency selective amplifiers including wideband; transistor power amplifiers AF and RF; oscillators, signal sources, and applications.

03.418 Principles of Communication**Systems II****4 Q.H.**

(Prereq. 03.417)

Topics include basic theory of amplitude, frequency, phase and pulse code modulated systems; analysis of modulating and demodulating

circuits; carrier systems using SSB; system block and level diagrams; logic control circuits in communication systems; modems.

03.419 Principles of Communication**Systems III****4 Q.H.**

(Prereq. 03.418)

Topics include fundamentals of digital communications; sampling requirements; analog to digital conversion methods; system capacity and bandwidth; comparison of practical digital systems, PAM, PCM, PFM, PWM; time and frequency division multiplexing; data decoding; selected examples from telemetry and computer links.

Chemical Engineering

The course descriptions listed under Chemical Engineering are intended to show the general scope of the subject that will be covered. Since courses are continuously updated, specific topics or methods of approach may vary from term to term. In addition to meeting course prerequisites, students are expected to take each chemical engineering course in the sequence shown on the specimen program sheet.

04.101 Chemical Engineering Calculations I

(Prereq. 12.115)

4 Q.H.*

This course examines application of fundamental laws of mass and energy conservation to chemical and physical processes. In this course the primary emphasis is on material balances. A computational laboratory is included to aid students in improving facility in handling problems typical of the course.

04.102 Chemical Engineering Calculations II

(Prereq. 04.101)

4 Q.H.

Emphasis in this course is on energy balances and the simultaneous application of mass and energy conservation laws. Problems selected from those typical of the chemical processing industries are considered.

04.106 Polymer Science and Engineering

(Prereq. 12.147)

4 Q.H.

This course provides instruction in the nature of polymeric materials and their importance to the chemical industries and everyday life. Topics include polymer classification, composition, structure, physical properties, chemical properties, and methods of polymer synthesis.

04.111 Chemical Engineering I

(Prereq. 04.102)

4 Q.H.

The important unit operations of chemical engineering: fluid mechanics, heat transfer, and evaporation are examined.

04.112 Chemical Engineering II

(Prereq. 04.111)

4 Q.H.

This course is a continuation of 04.111 to mass transfer unit operations: distillation and gas absorption.

04.121 Transport Phenomena I

(Prereq. 04.111)

4 Q.H.

The mechanisms of momentum transport in fluid flow phenomena are described. Velocity distributions for Newtonian fluids in the laminar and turbulent flow regimes are derived and utilized in the analysis of elementary fluid flow problems.

04.122 Transport Phenomena II

(Prereq. 04.121 and 04.112)

4 Q.H.

Mass and heat transport by the mechanisms of molecular and bulk motion are described. A variety of elementary physical and chemical transport problems are analyzed in terms of these mechanisms.

04.123 Experimental Methods I

(Prereq. 04.112)

4 Q.H.*

Experimental approach to solving chemical engineering problems and preparing reports to detail the results and their interpretations. Experiments illustrating the fundamental unit operations are performed.

04.124 Experimental Methods II

(Prereq. 04.123)

4 Q.H.*

A continuation of 04.123, requiring more advanced experimentation and more sophisticated reports.

04.126 Chemical Engineering Thermodynamics

(Prereq. 04.102 and 12.161)

4 Q.H.

Topics include the first law and its application to batch and flow systems, heat effects in chemical and physical processes, thermodynamic properties; the second law, entropy, physical and chemical equilibria; emphasis on the funda-

mental principles and mathematical relationships and their application to the analysis and solution of a variety of engineering problems.

04.131 Process Design I 6 Q.H.*
(Prereq. 04.122 and 04.126)

Process design of a chemical plant. Topics include process selection, material and energy balances, equipment selection and/or design, elements of instrumentation, flowsheets, and cost estimates.

04.132 Process Design II 6 Q.H.*
(Prereq. 04.131)

This course is a continuation of 04.131. A more complex design is required. Additional elements of process design are studied.

04.133 Projects I 6 Q.H.*
(Prereq. Senior standing and consent of Dept.)

This course offers individual research related to some phase of chemical engineering. Open only to students selected by the Department head on the basis of scholarship and proven ability.

04.134 Projects II 6 Q.H.*
(Prereq. 04.133)

The course offers a continuation of the research work undertaken in 04.133.

04.135 Principles of Nuclear Engineering 4 Q.H.
(Prereq. Senior standing)

The course offers an introduction to the principles of nuclear engineering. Elements of nuclear physics, reactor physics, and radiation safety are presented together with engineering techniques specific to the nuclear industry.

04.136 Chemical Engineering Kinetics 4 Q.H.
(Prereq. 12.162 and 04.126)

Topics include fundamental theories of the rate of chemical change in homogeneous reacting systems; integral and differential analysis of kinetic data; design of batch and continuous-flow chemical reactors; introduction to heterogeneous reactions and reactor design.

04.137 Mathematical Methods in Chemical Engineering 4 Q.H.
(Prereq. Senior standing)

The course examines formulation and solution of problems taken from chemical and engineering studies, which require advanced mathematical methods. Emphasis is placed primarily on the formulation step. However, numeric and analytic solution techniques for solving sets of algebraic equations and for solving ordinary and partial differential equations are discussed.

04.138 Chemical Process Control 4 Q.H.
(Prereq. Senior standing)

The course focuses on principles of automatic control with applications to chemical processing systems. Topics such as process modeling and control system design are included.

04.142 Introduction to Optimization 4 Q.H.
(Prereq. Senior standing)

Elementary optimization techniques, such as gradient methods, pattern search, linear programming, and dynamic programming, are described and applied to a variety of elementary physical and chemical problems.

04.143 Special Topics 4 Q.H.
(Prereq. Senior standing)

Chemical engineering topics of interest to the staff member conducting the class are presented for study.

04.144 Chemical Energy Economics 4 Q.H.
(Prereq. Senior standing)

Financial decision-making techniques are introduced and applied to the problems of production, transportation, and utilization of chemical energy resources such as petroleum, natural gas, coal, and shale oil.

04.145 Mass Transfer Operations 4 Q.H.
(Prereq. Senior standing)

Course focuses on calculation and design methods used in processes involving mass transfer. Topics covered include vapor-liquid equilibria for binary and multicomponent systems, multicomponent distillation, absorption, and extraction.

04.147 Analysis of Chemical Processes 4 Q.H.
(Prereq. 04.126, 04.136, and senior standing)

Course focuses on methods and reactions used for making chemical products on a large scale. Topics covered include types of physical and chemical equilibria, flow sheet patterns, energy management, and catalytic and noncatalytic rate problems. A number of situations involving simultaneous application of the above topics in process analyses are studied.

04.148 Management in the Chemical Industries 4 Q.H.
(Prereq. Senior standing in engineering)

The course focuses on principles of management as applied to the chemical process industries. Case studies are used to supplement lectures and discussion.

04.149 Kinetics of Polymerization Process 4 Q.H.
(Prereq. 04.136, 12.148, and senior standing)

The course focuses on the mechanisms by which polymeric materials are assembled via chemical reaction. Reaction rate models based on these mechanisms are utilized to investigate the effect of reaction parameters on the chemical and physical structure of the polymeric product. The specific polymerization processes considered are free radical addition, condensation, and ionic.

04.152 Pollution Control in Chemical Industries 4 Q.H.
(Prereq. Senior standing)

Students are instructed in fundamental operations for handling environmental problems

in the chemical process industries. Water quality requirements and industrial waste characteristics are discussed.

04.154 Chemical Process Development 4 Q.H.
(Prereq. Senior standing)

The course offers a study of the manner in which a chemical process evolves from the research laboratory to full-scale production. Typical processes are used as illustrations. Topics covered include economic factors, safety factors, batch vs. continuous operation, process evaluation, developing the flow sheet, and scale-up considerations.

Industrial Engineering

The course descriptions listed under Industrial Engineering are intended to show the general scope of the subject that will be covered. Since courses are continuously updated, specific topics or methods of approach may vary from term to term.

05.127 Concepts and Applications of Work Design 4 Q.H.

(Prereq. Not open to industrial engineering majors)

The course focuses on methods design concepts and graphic aids for analysis, including process, multiple activity, and operations charts; work measurement techniques, including stopwatch time study, work sampling, and predetermined time systems. Analysis methods are illustrated with examples drawn from production processes and service industries. The course is structured to assist students in developing the ability to identify and solve minor problems and to assess the need for and quality of outside expert assistance.

05.128 Work Design 4 Q.H.

Topics include principles of work physiology; workplace design from the standpoint of employee safety and effectiveness; work measurement techniques, including direct measurement, synthetic standards, and work sampling.

05.130 Systems I 4 Q.H.
(Prereq. 10.154)

Topics include linear feedback systems and solutions of first-order systems; Integral and derivative control; Laplace transforms for continuous systems analysis and Z-transforms in discrete systems; transfer functions; use of the DYNAMO language to simulate complex feedback systems.

05.131 Systems II 4 Q.H.

The course examines analysis and design of major industrial engineering systems. Students are expected to undertake up to five projects drawn from line balancing, job shop scheduling, stochastic network analysis, reliability in design, complex queuing system design, sequencing, or other areas as appropriate to student and faculty interest.

04.155 Corrosion Engineering 4 Q.H.
(Prereq. Senior standing)

The course covers the fundamentals of corrosion engineering: theories of corrosion, corrosion testing, corrosion protection, and selected relevant topics.

04.481 Nuclear Technology 4 Q.H.
(Prereq. 10.422, 11.319 BET only)

Topics include atomic and nuclear structure, nature of radioactivity, radiological safety, use of nuclear instrumentation, and elements of nuclear reactors.

05.145 Probabilistic Analysis for Engineers 4 Q.H.
(Prereq. Integral & Differential Calculus)

Probability theory presented axiomatically, with emphasis on sample space representation of continuous and discrete random variables. Material will cover standard distributions, i.e., normal, gamma, exponential, poisson, binomial, and others. Topics include expectation, transform techniques, and change of variable.

05.147 Statistics I 4 Q.H.
(Prereq. 10.208)

The course examines definition of a statistic; distributions of random variables including normal, t, chi-square, F, poisson, binomial; estimation of parameters, point estimation by method of moments, maximum likelihood, and Bayes estimates.

05.148 Statistics II 4 Q.H.
(Prereq. 05.147)

Topics include interval estimation, stating and testing hypotheses, linear regression, analysis of variance, applied topics such as reliability, quality control, decision theory from Bayes rule.

05.149 Reliability and Quality Control 4 Q.H.
(Prereq. 05.147)

Applied probability and statistical inference techniques are utilized in reliability analysis and quality control. Both theory and application are discussed in relation to the total quality assurance program.

05.150 Industrial Cost Control 4 Q.H.

Topics include fundamental concepts of accounting, with emphasis on using financial records to make engineering decisions. Study of financial statements of a firm. Contrast in usefulness of data from absorption costing vs. direct costing. Interpretation of variance accounts.

05.181 Operations Research I 4 Q.H.
(Prereq. 10.154)

Topics include deterministic models, including L.P. and duality, transportation and allocation, sensitivity and post-optimality analyses. Network analysis including maximal flow, shortest route, and PERT; dynamic programming and recursive functional expressions; game theory.

05.163 Operations Research II 4 Q.H.
(Prereq. 05.147)

The course focuses on the stochastic models in O.R.; their analytical development and solution. Topics covered include queuing, models, deterministic and stochastic inventory models, Markov chains, and sequencing.

05.165 Production and Inventory Control 4 Q.H.
(Prereq. 05.145 or equiv.)

Topics include basic inventory models and inventory management systems. Single-stage and multi-stage systems and their dynamics. Production control and aggregate planning. Mathematical and heuristic approaches to aggregate scheduling. Cost structure and decision oriented analyses. Consideration of jobshop scheduling and dispatching problems.

05.166 Facilities Design 4 Q.H.
(Prereq. 05.161)

The course examines use of descriptive and optimizing models (e.g. simulation, queuing theory, and linear programming) to design facilities and associated materials handling systems. Computer-assisted layout analysis techniques are applied to problems of real-world scope.

05.167 Material Handling System Design 4 Q.H.
(Prereq. 05.161)

The course covers design and analysis of large material handling systems. Topics include computer control of handling systems, integration with production and inspection, automated storage/retrieval systems, and automatic identification systems.

05.170 Human Considerations in Engineering Design 4 Q.H.

This is an introductory human factors course with emphasis upon the physiological and anthropometric bases of equipment and workplace design. Topics include: (1) thermal regulation and heat stress; (2) work and fatigue; (3) acceleration and whole body vibration stress; (4) ambient noise and auditory system damage; (5) body measurements and equipment design. As feasible, theory is related to student experiments.

05.171 Human Factors 4 Q.H.

This is an introductory course with emphasis upon human sensory/motor performance and Information processing capabilities. Includes application to the design and performance of man/machine systems. Topics include: (1) function and performance of the visual and auditory senses; (2) concepts of Information theory and signal detection theory; (3) cognitive channel capacity and selective attention. The

course is built around a series of experiments which explore theories of human performance in skilled task execution.

05.186 People in Organizations 4 Q.H.
(Prereq. Seniors only)

Topics include the individual in the work environment: work theory, motivation and interpersonal relations based on the concepts of the behavioral sciences; structure and dynamics of organizations; problems of innovation; case studies for situational analysis to assist students who wish to develop skill in applying behavioral concepts.

05.201 Principles of Computation and Programming I 4 Q.H.
(Prereq. FORTRAN)

The course covers review of algorithms, computers, and programming at the FORTRAN level. Machine language programming (instruction, execution, and addressing techniques). Coding and representation of data and structure. Subroutines, input-output, and simultaneous operations. Assemblers and loaders. Introduction to list structures and data organization. Program debugging and verification. Survey of machines, devices and languages.

05.240 Digital Simulation Techniques 4 Q.H.
(Prereq. FORTRAN and 05.147 or 05.245)

The course covers design and construction of digital, discrete simulation models. Extensive use of FORTRAN and GPSS simulation language. Discussion of model logic and specification, testing, validation, and use. Several simulation projects using the North-eastern computer facilities.

05.241 Management Information Systems 4 Q.H.
Topics include managerial applications of digital computers: the use of computers in information, decision-control systems; information-based theories of management; survey of information technology; computer system basics; cost and value of information; system design, analysis, equipment selection; organizational implications.

05.242 Data-Base Management 4 Q.H.
(Prereq. One year of a high-level language)

The course offers introduction to data-base systems and their rise in corporations. Review of basic data storage concepts. Evolution and growth of data-base. Creating and managing data organization file using hashing, threaded lists, tree structures. Distributed data-bases. Data-base software, directory maintenance, tapes of data-base languages, query languages. Data-base management systems. Management considerations, including security, privacy, and information quality.

05.245 Basic Engineering Statistics 4 Q.H.
(Not open to industrial eng. majors)

The course covers introduction to basic probability distributions, including the binomial and

hypergeometric, exponential, Poisson, and normal; laboratory data analysis; statistical test of hypotheses about central tendency and variability; curve fitting with least squares on engineering data.

05.260 Engineering Economy 4 Q.H.
(Not open to Industrial eng. majors)

Topics include the formulation of analytical techniques, i.e., rate of return, present worth, and annual cost. The application of these techniques to solve business and engineering problems involving design, selection, replacement, lease-buy decisions, and decisions between multiple alternatives. Sensitivity analysis and basic probability are introduced in cases where uncertainty exists. Brief survey of sources and costs of capital, debt-versus-equity financing, and leverage.

05.261 Engineering Economy and Statistical Decision Theory 4 Q.H.
(Prereq. 05.145 or 10.208)

Computer Science

06.100 Computer Science I 4 Q.H.
The objectives of this course are to introduce problem solving methods and algorithm development, teach a high level language that is widely used, and teach how to design and document programs using good programming style. Topics include computer organization, with an overview of computer components and their function; programming languages and programming, including representation of integers, reals, characters and instructions; data types, constants, variables; assignment statement; logical expressions; sequencing, alteration and iteration; arrays, sub-programs and parameters; simple I/O; programming projects emphasizing good programming style; algorithm development including the techniques of structured programming; flow charting, stepwise refinement; simple numerical examples; algorithms for searching, sorting and merging ordered lists. Examples are taken from such areas as business applications and simulations involving games; Introduction to recursion; Introduction to using software packages such as graphic software.

06.101 Computer Science II 4 Q.H.
(Prereq. 06.100)

The objectives of this course are to continue the development of discipline in program design, style and expression, and in debugging and testing; to introduce algorithm analysis; and to introduce basic aspects of string processing, recursion, internal sort/search methods and simple data structures. Topics include review of good programming style, expression and

The objective of the course is to familiarize the student with the theory and techniques of economic evaluation of an investment project. Introductory steps in the analysis of investment proposals, time value of money, and cash flows; analysis of deterministic and stochastic cash flows in terms of present worth, annual cost, rate of return, and benefit/cost ratio. Decision tree for sequential decisions, criteria for decision making under uncertainty, utility theory, value of information, effect of accounting procedures and taxes on investment analysis. Case studies involving replacement, lease, engineering design, and public projects.

05.290 Independent Study in Industrial Engineering 1-4 Q.H.
For students, usually in the senior year, with high scholastic standing on advanced I.E. topics. Projects may be of an applied or theoretical nature; formal report submitted to student's project supervisor at the end of quarter.

documentation; structured programming concepts such as control of flow, invariant relation of a loop, stepwise refinement of both statements and data structures or top down programming; string processing including concatenation, substrings and matching; internal searching and sorting methods such as binary, radix, shell, quicksort, merge sort, and hash coding; data structures such as linear allocation and linked allocation; recursion including recursive algorithms and data structures.

06.110 Programming Language Lab I 1 Q.H.
(Prereq. 06.100 and 06.101)

The course offers an introduction to the elements of FORTRAN programming including I/O, subprogram linkage, and methods of structured programming in FORTRAN.

06.111 Programming Language Lab III 1 Q.H.
(Prereq. 06.111)

The course focuses on elements of list languages.

06.112 Programming Language Lab II 1 Q.H.
(Prereq. 06.110)

Course materials include elements of job control language; procedure files and parameter exchange; device handling for both tapes and disks; detailed coverage of the job control language for the computer at the Academic Computer Center.

06.130 Assembly Language I 4 Q.H.
(Prereq. 06.101 or permission of instructor)

An introduction to the basic concepts of computer programming on the assembly language level, this course includes machine

organization; data and instruction representation; machine language programming; addressing mode; indexing; instruction set; symbolic assembly language; macros, pseudo-ops and assembly options.

06.131 Assembly Language II 4 Q.H.
(Prereq. 06.130)

This course is a continuation of 06.130. Topics include I/O programming; interrupts and re-entrant programming subprogram linkage; independent assembly of subprograms; linkage with higher level languages; device management asynchronous programming; and an introduction to assemblers and loaders.

06.201 Data Structure 4 Q.H.
(Prereq. 06.101)

Course material includes basic information structures for representing and manipulating data in computer programming: arrays, lists, stacks, queues, deques, trees, binary trees; applications to nonnumeric computations and problems in compiler construction; searching and sorting methods and their relative merits. Students are required to write programs to implement these structures on a computer.

06.210 Computer Graphics 4 Q.H.
(Prereq. 06.201 and 10.246)

The course focuses on characteristics and programming of output devices; point and line drawing, two-dimensional displays, clipping and windowing. Pictures: the data structures and organization of display files. Interaction: graphical input and external events—operating system considerations. Some three dimensional drawing is also included.

06.220 File Processing 4 Q.H.
(Prereq. knowledge of COBOL or 09.140)

As this course makes use of COBOL, students are expected to have command of the fundamentals of that language. Topics include generating reports; manipulating sequential, indexed-sequential, and direct/relative data files on magnetic tape and disc; record blocking; searching, sorting, updating, purging, and merging operations; random access techniques; introduction to data base management concepts.

06.225 Data Base Management Systems 4 Q.H.
(Prereq. 06.201)

Course material includes data models, data languages, DBMS facilities; schema, subschema data independence; hierarchical, network, and relational systems; implementation considerations, searching, inverted files; operational requirements; performance, integrity, security, utility; survey and comparison of existing systems.

06.230 Operating Systems 4 Q.H.
(Prereq. 06.131, 06.201, and 03.192)

This course is intended to give the student an

overall understanding of the primary principles and elements of operating systems, including the concept of an operating system; functions of the operating system; processes; processor allocation; memory management; virtual memory; I/O programming; multiple processors; interrupt processing device management; information management, including file access, file protection and file maintenance; and the design and implementation of an operating system.

06.240 Analysis of Programming Languages 4 Q.H.
(Prereq. 06.201, 06.110, and 06.111)

This course takes up basic issues in programming language design including efficiency of execution; static checks possible; structured programming; static, stack, or heap allocation for control and data structure; security; arithmetic; parallelism and synchronization modularity; verification; standardization; clarity and completeness of definition, definition methods, extensibility. This course examines existing languages, such as: Lisp, Scheme, planner, Algol 60; Pascal, Modula; Algol 68, Mary; Ada; assembler; ML1 and Stage 2 macro processors (other languages may be added, some deleted); Snobol; PL1; Sail, or other purely applicative language, maybe ISWIM, others; Lambda calculus, typed and untyped; COBOL.

06.250 Automata and Formal Language 4 Q.H.
(Prereq. 10.210 and 06.201)

Topics include finite state machines and regular expressions; context-free grammars; parsing of context-free languages; context-sensitive grammars, pushdown stores, stack machines and linear-bounded automata; turing machines, undecidability, description of computation using list structures, program machines and programs.

06.260 Compiler Design I 4 Q.H.
(Prereq. 06.131, 06.201, 06.110, 06.111, and 06.112)

The purpose of this course is to acquaint the student with the basic mechanisms involved in programming language implementation, including an overview of compilers, translators and interpreters and their implementation through parsing, verification, optimization, code generation and execution. Topics include finite automata; lexical analysis; syntactic specification of programming languages; context-free grammars; affixes; basic parsing techniques; run-time storage administration; syntax-directed translation; type checking and conversion; statement translation; symbol tables; error detection and recovery; local code generation and optimization.

06.265 Analysis of Algorithms 4 Q.H.
(Prereq. 10.210 and 06.201)

This course introduces the basic principles and techniques for analyzing algorithms. Topics include algorithms on sorting, searching, graphs and digraphs (such as minimal spanning tree, shortest path, depth-first-search, components of a graph); methods involving string matching, computations on polynomials and matrices. Finally, students are introduced to the concept of NP-complete problems.

06.280 Artificial Intelligence 4 Q.H.
(Prereq. 06.201)

The course focuses on analysis of current computer algorithms dealing with problems such as theorem proving, chess playing, general problem solvers, robotics, symbolic computation, perceptrons, self-reproducing automata, and parallel machines.

06.291 Computer Science Project 4 Q.H.

(Prereq. Computer science seniors)

Based upon a student-generated project proposal, students are assigned to appropriate faculty members for developing and completing a computer science project. The nature of the project will reflect the interest and experience of the student.

06.295 Computer Science Seminar 4 Q.H.
(Prereq. Computer science seniors only)

This course acts as a "cap stone" course for computer science majors. Meetings are held once or twice per week and a current topic or problem in computer science is presented by an expert in the subject matter. Students are assigned additional questions and/or problems to research in the topic area as an aid to their developing a deeper appreciation and understanding of various aspects of computer science.

Engineering Technology

Mechanical Engineering Technology

02.411 Mechanics A 4 Q.H.
(Prereq. 10.420 or 10.620; 11.417 or 11.617)

Topics include forces, moments, couples, statics of particles and rigid bodies in two and three dimensions. Distributed forces: external and internal. First moments and centroids. Analysis of structures: trusses, frames and machines.

02.412 Mechanics B 4 Q.H.
(Prereq. 02.411 or 02.611)

Topics include friction, second moments, and virtual work. Kinematics of particles; rectilinear and curvilinear motion of dynamic particles. Force, mass, and acceleration, work and energy.

02.413 Mechanics C 4 Q.H.
(Prereq. 02.412 or 02.612)

Topics include impulse and momentum of particles; kinematics and dynamics of rigid bodies: force, mass, and acceleration; dynamics of rigid bodies: work and energy, impulse and momentum. Introduction to mechanical vibration.

02.414 Stress Analysis A 4 Q.H.
(Prereq. 02.411 or 02.611)

Topics include axially-loaded members; stress and strain, allowable stresses, factor of safety, temperature effects, indeterminate members; thin-walled pressure vessels; centric loading of bolted and welded connection; shear and moment in beams; eccentrically loaded connections; flexural and transverse shearing stresses in beams.

02.415 Stress Analysis B 4 Q.H.
(Prereq. 02.414 or 02.614)

Topics include determinate and indeterminate beam deflections and reactions by numerical

and graphical integration and area moment methods; theorem of three moments. Torsional stresses and strains; power transmission; eccentric loads on struts, beams, riveted and welded joints; combined and principle stresses; Mohr's circle; theories of failure.

02.416 Stress Analysis C 4 Q.H.
(Prereq. 02.415 or 02.615)

Topics include curved beam, asymmetrical bending of beams, shear-center and shear stresses on thin sections, composite beams. Columns, energy absorption and resilience, inertial stresses, impact loading, deflection of beams by energy methods.

02.419 Mechanics 4 Q.H.
(Prereq. 10.420 and 11.417)

Kinematics of particles: rectilinear and curvilinear motion of dynamic particles. Force, mass, and acceleration, work and energy. Impulse and momentum of particles. Kinematics and dynamics of rigid bodies: force, mass, and acceleration. Dynamics of rigid bodies: work and energy, impulse and momentum.

02.421 Thermodynamics A 4 Q.H.
(Prereq. 11.418 or 11.618)

Topics include general theory of heat and matter, laws of thermodynamics, energy-transformation principles; availability of energy; properties and processes for pure substances and ideal gases. Thermodynamic properties and processes of liquids and vapors; tables and charts; mixtures of fluids, vapor cycles.

02.422 Thermodynamics B 4 Q.H.
(Prereq. 02.421 or 02.621)

The course covers the theory of vapor engines and analysis of actual engine types using gas and vapor compression; internal combustion engines; theory of gas and vapor flow through orifices and nozzles; principles of gas com-

pression, analysis of vapor compression, refrigeration systems, low-temperature refrigeration cycles, and absorption refrigeration systems.

02.423 Refrigeration and Air Conditioning

(Prereq. 02.422 or 02.622) **4 Q.H.**

The course focuses on air conditioning principles, including psychometrics and heat pumps. Course covers calculation of heating and cooling loads in accordance with A.S.H.R.A.E. practices; principles of gas compression; analysis of vapor compression; refrigeration systems; low temperature refrigeration cycles; and absorption refrigeration systems.

02.430 Heat Transfer

4 Q.H.

(Prereq. 02.422 or 02.622)

Topics include the primary modes of heat transfer; thermal conductivity; thermal conductance/resistance concept; thermal-electrical analogy; combined heat transfer mechanisms, basic equations of conduction; analytical solutions of various steady state conduction problems. The course also covers dimensional analysis and similarity considerations; natural and forced convection; hydrodynamic and thermal boundary layers; black body radiation; Kirchhoff's law; emissivity and absorptivity; radiation between simple bodies; numerical methods; log mean temperature differences; overall heat transfer coefficients; heat exchanger effectiveness; tubular exchanger design; regenerative and evaporative heat exchangers; heat transfer engineering problems.

02.431 Materials A

4 Q.H.

Lectures on fundamental metallic structures; general metallurgical information covering theoretical aspects of properties, testing, and failure of metals. Supplemented by visual aids. Lectures on alloying and hardening of metals, refinement of metals, equilibrium diagrams, characteristics of engineering metals, principles of metal fabrication.

02.432 Materials B

4 Q.H.

(Prereq. 02.431 or 02.631)

The course focuses on the study of inorganic materials, i.e., polymers, glasses, ceramics, cements, wood; and materials having important electrical and magnetic properties. A summary of the most recent applications for the fabrication and uses of both metals and nonmetals. Structures of metals, imperfections, phase diagrams, effect of temperature on structure and properties of metals (annealing, recrystallization, recovery, precipitation, diffusion), strengthening mechanisms, mechanical properties of nonferrous metals. Laboratory: experiments in preparation of samples, selection, polishing, and etching; examination of nonferrous metals, use of the microscope, linear analysis, construction of cooling curves, and simple binary phase diagrams.

02.433 Applied Metallurgy

4 Q.H.

(Prereq. 02.432 or 02.632)

Lectures include mechanical properties of ferrous metals; the iron carbon diagram; high-temperature alloys, hardening methods, impact tests, effects of environment on metals. Manufacturing processes; methods of fabrication, limitations on the use of different materials and their processing, casting, welding, cutting, drawing, powder metallurgy. Laboratory: includes experiments on analysis of stress-strain diagrams of iron and steel, heat treatment of steels; surface corrosion; tempering and drawing; use of metallograph and analysis of the results. Experiments in cold rolling, swagging, drawing of nonferrous metals, and analysis of the results. Tension, shear, fatigue, and machinability tests on ferrous metals.

02.443 Fluid Mechanics A

4 Q.H.

(Prereq. 02.412 or 02.612)

Topics include hydrostatics; principles governing fluids at rest; pressure measurement; hydrostatic forces on submerged areas and objects; simple dams; fluids in moving vessels; hoop tension; fluid flow in pipes under pressure; fluid energy, power and friction loss; Bernoulli's Theorem; flow measurement.

02.444 Fluid Mechanics B

4 Q.H.

(Prereq. 02.433 or 02.643)

The course covers pipe networks and reservoir systems; flow in open channels; uniform flow; energy, friction loss, minor losses, velocity distribution, alternate stages of flow, critical flow; nonuniform flow; accelerated and retarded flow; hydraulic jump and waves.

02.451 Mechanical Vibrations

4 Q.H.

(Prereq. 02.413, 02.613)

Elements of vibrating systems; one degree of freedom (undamped free and forced vibration from Newton's law of motion and energy methods); natural frequencies; damped free and forced vibration; impedance and mobility; systems with more than one degree of freedom; influence coefficients, Lagrange's equations, generalized coordinates, vibration absorber.

02.452 Experimental Stress Analysis

4 Q.H.

(Prereq. 02.415 or 02.615)

Theory and experimentation showing the application of extensometers and electrical strain gauges as transducers in the field of experimental stress and strain analysis. Theory and laboratory practice; photoelastic methods as applied to classical model analysis and modern coating analysis.

02.461 Machine Shop

4 Q.H.

Introduction to study of machines for metal processing, cutting tools, and fluids. Machinability; automatic machinery.

02.473 Measurement & Analysis Lab.

2 Q.H.

(Prereq. 02.414 or 02.614; 06.400 or 06.600; 10.422 or 10.622; 11.419 or 11.619)

The course includes experimental procedures for the collection and analysis of data by graphical and numerical methods including computer applications, report writing that draws conclusions relative to accuracy, precision, true values, and measured values as they relate to basic mechanical measuring instruments for length, area, volume, specific gravity, pressure, temperature, and time as these parameters are utilized in making mechanical measurements.

02.474 Technology Lab A 2 Q.H.

(Prereq. 02.473 or 02.673; 02.415 or 02.615; 02.431 or 02.631; or concurrently)

The course includes experimental procedures to determine mechanical properties of materials under tensile, compressive, torsional, direct shear, flexural, impact, fatigue, and creep loading conditions as they are affected by normal and abnormal environmental conditions; also as they are affected by homogeneity, non-homogeneity, isotropy, and non-isotropy.

02.475 Technology Lab B 2 Q.H.

(Prereq. 02.473 or 02.673; 02.443 or 02.643; or concurrently)

The course includes experimental procedures to determine the physical properties of incompressible fluids and to measure the flow rates and velocities utilizing pilot tubes, orifice plates, venturi meter and weirs flow meters, U tube differential manometers, and piezometers as the fluid flows through open channels, partially filled conduits, conduits under pressure, pipe networks, turbines, and pumps.

02.476 Technology Lab C 2 Q.H.

(Prereq. 02.473 or 02.673; 02.422 or 02.622; or concurrently)

The course covers basic thermodynamic relationships; experimental procedures to examine the flow of compressible fluids and steam and to examine the energy conversion of a fuel into a working substance and the related heat transfer mechanisms. Operating characteristics of thermal generators, engines and compressors.

02.477 Technology Lab D 2 Q.H.

(Prereq. 02.476 or 02.676; 02.422 or 02.622; 02.430 or 02.630; or concurrently)

The course includes experimental procedures to examine the operating characteristics and efficiencies of internal combustion engines, brake horsepower, indicated horsepower, friction horsepower, mean effective pressure, fuel consumption, torque, ignition timing, manifold pressure, and compression ratios and internal engines as energy conversion systems; energy conversion of fuels.

02.478 Technology Lab E 2 Q.H.

(Prereq. 02.473 or 02.673; 02.423 or 02.623; 02.430 or 02.630)

The course includes experimental, analytical, and design projects to examine refrigeration, air

conditioning, and heating pump cycles.

02.479 Power Generation 4 Q.H.

(Prereq. 02.422 or 02.622)

Topics include basic power generation cycles; gas turbine cycles; effects of combustor temperature, intercooling, etc. on cycle performance; Rankine regenerative cycles; effects of steam temperature, pressure, number of feedwater heaters, etc. upon performance; steam generation equipment: boilers, reactors.

The course also covers fossil fuel characteristics and effects on boiler design; combustion analysis; draft calculations; axial and centrifugal fan performance characteristics; pump design and performance consideration; heat exchanger design considerations.

The course also includes applications of principles of economics to cycle and performance considerations; use of load curves; economic considerations of heat rate; economics of equipment selection; study of auxiliary equipment such as precipitators and flue gas desulfurization systems.

02.480 Mechanical Design A 4 Q.H.

(Prereq. 02.415 or 02.615; 02.431 or 02.631)

The course covers introduction to mechanical design, the design process, design factors, creativity, optimization, human factors, value engineering. These principles are discussed and developed through simple design projects. Principles of design, properties and selection of materials; stress concentrations; strength under combined stresses; theories of failure; impact and fluctuating and repeated loads.

02.481 Mechanical Design B 4 Q.H.

(Prereq. 02.480 or 02.680)

Topics include stresses; deformation and design of fasteners, screws, joints, springs, and bearings; lubrication and journal bearings. Stresses and power transmission of spur, bevel, and worm gear; shaft design; clutches and brakes.

02.499 Special Problems in Mechanical

Engineering Technology 4 Q.H.

(Prereq. Consent of Department Chairman)

Theoretical or experimental work under individual faculty supervision.

Electrical Engineering Technology

03.410 Electrical Measurements 4 Q.H.

(Prereq. 03.453)

The course covers standards of measurements; dimensional analysis; errors and measurement of dispersed data; discrete and continuous variables; binomial distribution; normal distribution; guaranteed error; methods of resistance measurements; digital voltmeters and analog to digital conversion; voltage references; potentiometers and a.c. bridges.

03.411 Electronics I 4 Q.H.

(Prereq. 03.452)

Topics include semiconductor diodes and applications, transistor biasing techniques, graphical analysis of basic amplifiers, d.c. and a.c. load lines.

03.412 Electronics II 4 Q.H.

(Prereq. 03.411)

Topics include small-signal, low-frequency transistor models; gains; and impedances at midband; frequency effects in transistor circuits; multistage circuits; transistors used as current sources.

03.413 Electronics III 4 Q.H.

(Prereq. 03.412)

The course covers review of Bode plots, transistor circuits at low and high frequencies, feedback operational amplifiers, differential amplifiers, applications.

03.414 Pulse & Digital I 4 Q.H.

(Prereq. 03.411)

The course covers switching characteristics of semiconductor devices; wave generation and shaping, using combinations of passive and integrated circuit components; comparators, hysteresis, and the dual ramp analog to digital converter-voltmeter circuits; voltage to frequency conversion.

03.415 Pulse & Digital II 4 Q.H.

(Prereq. 03.414)

Topics include digital operations; logic statements and theorems; minimization of logic functions; logic gates and the characteristics of the integrated logic families; flip-flops, counters and registers; introduction to sequential circuit design; sample and hold circuits; analog to digital conversion.

03.417 Principles of Communication Systems I

(Prereq. 03.413)

4 Q.H.

Topics include signal analysis using Fourier methods; noise in communication systems; frequency selective amplifiers including wide-band; transistor power amplifiers AF and RF; oscillators; signal sources and applications.

03.418 Principles of Communication Systems II

(Prereq. 03.417)

4 Q.H.

The course covers basic theory of amplitude, frequency, phase and pulse code modulated systems; analysis of modulating and demodulating circuits; carrier systems using SSB; system block and level diagrams; logic control circuits in communication systems; modems.

03.419 Principles of Communication Systems III

(Prereq. 03.418)

4 Q.H.

The course covers fundamentals of digital communications; sampling requirements; analog to digital conversion methods; system capacity and bandwidth; comparison of practical digital systems PAM, PCM, PFM, PWM; time and frequency division multiplexing; data decoding;

selected examples from telemetry and computer links.

03.420 Electricity and Electronics I 4 Q.H.

(Prereq. 10.420 and 11.419)

The course covers introduction to circuit analysis, resistive networks, periodic excitation function, steady state a-c circuits; the physical foundations of electronics and the physical operation of electronic devices.

03.421 Electricity and Electronics II 4 Q.H.

(Prereq. 03.420)

The course covers single-stage electronic circuits, magnetic circuits and transformers, electro mechanical energy conversion, d-c machines, a-c machines.

03.423 Electronic Laboratory 2 Q.H.

(Prereq. 03.412 or concurrently)

The course covers experiments dealing with laboratory equipment (meters and oscilloscopes) techniques; junction and field-effect transistor characteristics; vacuum and semiconductor diodes; power supplies, including the regulated type; silicon controlled rectifiers; resistance-coupled amplifiers using transistors, including feedback methods.

03.424 Circuits Laboratory I 2 Q.H.

(Prereq. 03.451)

The course covers experimentation in electronic circuit theory utilizing various measurement techniques. Instrumentation verification of circuit theorems; response of circuits to steps and impulses; oscilloscope theory and applications.

03.425 Circuits Laboratory II 2 Q.H.

(Prereq. 03.424)

The course offers further experimentation in electrical circuits and measurement techniques. Experiments include response of circuits to steps and impulses, nonlinear devices, terminal characteristics of active devices, log modulus plots, network parameters and synthesis. Fourier analysis and synthesis.

03.427 Advanced Electronic Laboratory I

(Prereq. 03.423)

2 Q.H.

The course covers experiments dealing with the use of oscilloscopes, the examination of transistor audio amplifiers, push-pull amplifiers, drivers, pulse and video amplifiers, transients and wave-shaping circuits, audio frequency oscillators, and the study of operational amplifiers.

03.428 Advanced Electronic Laboratory II

(Prereq. 03.427)

2 Q.H.

The course covers experiments dealing with the modulation of a class C amplifier, the diode detector, basic timing circuits, RF and crystal oscillators, astable multivibrators, logic gates, flip-flops, binary adders, registers and counters; active filters, frequency modulation detectors, and analog-to-digital and digital-to-analog conversion.

03.429 Advanced Electronic Laboratory III 2 Q.H.
(Prereq. 03.428)

Topics include spectral studies of FM and PM waves, amplitude limiters; the balanced modulators and single sideband generators; integrated circuit timers and monolithic random access memory; monolithic phase-locked loop as well as a series of microwave experiments and digital experiments.

03.430 Energy Conversion 4 Q.H.
(Prereq. 03.452 and 10.422)

Topics include generalized theory of rotating energy conversion devices; steady-state operation of the multiply-excited direct-current machine; control of speed; special machines; transformers; steady-state considerations of induction and synchronous machines; generalized machine and circuit model; Laplace transform techniques applied to the analysis of dynamic operating modes of rotating machines.

03.437 Distributed Systems 4 Q.H.
(Prereq. 10.422 and 11.419)

Topics include radiation, transmission, and reception of electromagnetic waves; distributed-line constants and traveling waves of transmission lines; differential equations of the uniform line.

03.451 Circuit Analysis 4 Q.H.
(Prereq. 10.420 and 11.419)

Topics include Ohm's law, Kirchhoff's current and voltage laws, equivalent resistances and sources, mesh and modal analysis, network theorems, two-port networks and power relations—all with respect to direct currents; energy storage, singularity functions, response of R, L, and C elements to singularities.

03.452 Circuit Analysis II 4 Q.H.
(Prereq. 03.451)

Topics include complex algebra, phasors, frequency domain, mutual inductance, transformers, steady-state a-c theory, driving point and transfer impedances, power and energy in a-c circuits; Laplace transforms; partial fraction expansion; Laplace transform techniques applied to the solution of RLC networks.

03.453 Circuits Analysis III 4 Q.H.
(Prereq. 03.452)

The course covers application of differential equations to the solutions of linear, time-invariant electrical networks; introduction to singularity functions, convolution, and time domain transient analysis; network topology and duality; introduction to the methods of transformation calculus and complex frequency concepts.

03.454 Circuits Analysis IV 4 Q.H.
(Prereq. 03.453)

Topics include signal analysis in the frequency domain; Fourier series; Fourier and Laplace

transform methods; a varied selection of circuit problems using Laplace transforms and related theorems.

03.460 Engineering Analysis I 4 Q.H.
(Prereq. 10.422 and 03.452)

The course covers linear algebra and its application to circuit equations, solution of linear differential equations including an introduction to Laplace transforms.

03.462 Basic Power Systems I 4 Q.H.
(Prereq. 03.454)

Topics include consideration of power transmission lines; line constants; current voltage and power relations; introduction to electric-power distribution loads, feeders, and substations; application of matrices.

03.463 Basic Power Systems II 4 Q.H.
(Prereq. 03.462)

Topics include consideration of symmetrical and unsymmetrical faults; protective devices—application and coordination; power flow in electric circuits; steady-state power limitations of systems; voltage regulation theory and application.

03.464 Basic Power Systems III 4 Q.H.
(Prereq. 03.463)

Topics include computer applications to power systems with emphasis on load-flow studies; basic ideas of systems planning, short-circuit studies and system stability.

03.470 Digital Computers 4 Q.H.
(Prereq. 03.411)

Introduction to digital computer design. Topics include general computer organization, number systems and number representations, design characteristics of major computer units, Boolean algebra applications to computer design.

03.471 Digital Computers II 4 Q.H.
(Prereq. 03.470)

Examination of microprocessor architecture and organization. Study of the machine language and assembly coding of an industry-accepted microprocessor. A suitable topic from the current literature will be analyzed. Assembly language coding problems will be assigned.

03.477 Control Engineering I 4 Q.H.
(Prereq. 03.454 and 10.422)

Topics include analysis of linear servomechanisms under both transient and steady-state conditions; signal flow graphs; Laplace transforms used in the formulation of block diagrams and transfer function.

03.478 Control Engineering II 4 Q.H.
(Prereq. 03.477)

Topics include system stability; root locus techniques; treatment of Nyquist criteria and Bode diagram methods for systems evaluation.

03.490 Optical Instrumentation 4 Q.H.
(Prereq. 10.408 and 11.419)

The course focuses on telescopes, microscopes, etc., as optical system components. Includes magnification, aberrations, resolution criteria, photometry. Compatibility of system components and optimization of systems. The basic nonimage forming systems used for analysis control and metrology.

03.498 Special Problems in Electrical Engineering Technology 2 Q.H.
(Prereq. Consent of Department Chairman)

The course offers theoretical or experimental work under individual faculty supervision.

03.499 Special Problems in Electrical Engineering Technology 4 Q.H.
(Prereq. Consent of Department Chairman)

Graphic Science

09.108 Computer for Engineers 4 Q.H.
Introduction to use of computers in the solution of engineering problems; FORTRAN programming language. A survey of the organization and function of an elementary digital computer; the use of flowcharts in developing program logic; establishing and manipulating tables, arrays, and matrices in memory; using subprograms and subroutine packages; and graphical output on an X-Y plotter.

09.109 Engineering Graphics and Design 4 Q.H.

Mathematics

10.100 Mathematics Preliminaries I 4 Q.H.
(Prereq. Permission of course coordinator)

The purpose of this course is to supply, together with the course 10.110, the high school math background necessary for a student to survive in 10.101, 10.104, or 10.118. Material includes the arithmetic of signed numbers, fractions, decimals and percents; algebraic manipulation and solution of simple equations; elementary word problems; laws of exponents.

10.101 Basic Mathematics 4 Q.H.
The course examines systems of linear equations and their graphs. Graphing systems of linear inequalities in two variables with application to linear programming. Introduction to matrices, matrix multiplication, and vectors.

The course offers theoretical or experimental work under individual faculty supervision.

Chemical Engineering Technology

04.481 Nuclear Technology 4 Q.H.*
(Prereq. 10.422 and 11.319)

Atomic and nuclear structure; discovery and nature of radioactivity. Nuclear reactions and energy, induced nuclear transformations, neutron properties, applications of radio nuclides. Radiological safety: nuclear instrumentation for particle detection, monitoring, and experimentation. The fission process and its applications; nuclear reactors—their classification, design, and application; nuclear fuel processing; radioactive waste disposal. Supplementary laboratory experiments.

The orthographic system as a means of depicting three-dimensional objects and concepts on a two-dimensional medium. Progression from principle views to auxiliary views and sections. Reading and interpreting detail and assembly drawings and depiction by means of pictorial drawings and sketches. Fundamentals of manufacturing processes and dimensions and their interrelationship. Elements of design and student involvement by evaluation of existing design, components and systems. The student as the creative designer-engineer.

09.130 Applied Programming 4 Q.H.
(Prereq. 06.100)

Elements of COBOL programming.

10.102 Basic Mathematics 4 Q.H.
Topics include introduction to probability, sample spaces with equiprobable events, permutations and combinations, conditional probability. Random variables, introduction to Markov processes.

10.104 Fundamentals of Mathematics 4 Q.H.
This course examines how to solve various kinds of algebraic equations: linear, quadratic, and linear systems in two and three unknowns. Applications to word problems such as motion, mixture, and variational problems. The concept of function, graphs, line slopes, and graphs of polynomials. Some elementary trigonometry and vectors in the plane.

10.105 Functions and Basic Calculus 4 Q.H.
The course provides an introduction to differential calculus. Elementary rules of differentiation with application to graph sketching

and to maximum and minimum problems. Exponential and logarithmic functions with applications to problems in compound interest, population growth, and radio-active decay.

10.107 Calculus 4 Q.H.

The course offers a review and continuation of differential calculus: graphing and differentiation of trigonometric functions; introduction to integral calculus with applications to geometric problems and to differential equations.

10.108 Probability, Statistics, and the Computer (Prereq. Nonmath majors) 4 Q.H.

The course presents a computer-oriented introduction to statistical methods, with applications in the social and life sciences. Topics include descriptive statistics, elementary probability, correlation and regression, and the fundamentals of statistical inference (confidence intervals and hypothesis testing) with a minimum of mathematical derivations. A statistical computer package such as MINITAB or SPSS is used in solving supplementary problems.

10.110 Mathematics Preliminaries II 4 Q.H.

The purpose of this course is to supply, together with the course 10.100, the high school math background necessary for a student to survive in 10.101, 10.104, or 10.118. Topics include quadratic equations and systems of equations; graphing (including slope of a line and vertex of a parabola); more word problems; either logarithms, trigonometry, or some of both at the instructor's discretion; in winter and spring quarters the material covered in 10.100 will be assumed; in the fall quarter there is an overlap with 10.100 on solving equations, word problems, and laws of exponents.

10.118 College Mathematics for Business 4 Q.H.

Topics include sets; rectangular coordinates and graphs; functions and functional notation; linear and quadratic functions; exponential and logarithmic functions; systems of linear equations; summations; inequalities; permutations and combinations; elementary probability concepts; arithmetic and geometric progressions; simple and compound interest; annuities.

10.119 Fundamentals of Mathematics 4 Q.H. (Prereq. 10.118 or equiv.)

Topics include matrices; Gaussian elimination; inverses of matrices; systems of linear inequalities; feasible regions; graphical solution of linear programming problems; limits; derivatives; differentiation of polynomials; differentiation of exponential and logarithmic functions; maxima, minima, and points of inflection; optimization in nonlinear problems; marginal analysis of cost revenue and profit functions.

10.120 Introduction to Computers I 4 Q.H.

(Prereq. Nonmath majors)

This course has two goals: (1) to introduce computers and consider their applications and (2) to introduce computer programming so that the uses and limitations of computers can be discussed intelligently. Small programs will be written and run. Applications such as sorting, searching, data processing, simulation, and artificial intelligence will be covered.

10.122 Numerical Methods with a Hand Calculator 4 Q.H.

Course covers the use of scientific hand calculator. Topics include the meaning and use of most of the keys, e^x , $1/n$, \log , and the trigonometric functions; RPN and algebraic notation; and a variety of computations that can be done easily on a scientific calculator—least squares, compound interest, solutions of equations, iteration techniques, difference equations, Euler's Method, difference quotients, and numerical integration. Techniques to promote speed and accuracy in using calculators for course work problems are emphasized. This course is intended for students who may take science courses.

10.126 Mainstreams of Mathematics 4 Q.H.

This course traces the development of mathematical thought by focusing on some of its most exciting aspects. Individual projects supplement lectures and readings, enabling students with diverse backgrounds to rediscover mathematics. The level is nontechnical; no more than high school algebra and geometry are assumed. Topics vary from year to year, but may include mathematical games, a wide variety of puzzles, ancient number systems, logic and computers, calculus and the scientific revolution, art and symmetry. The course may be used to satisfy the math-science distribution requirement but not any major requirements.

10.130 Introduction to Computers and Computation 4 Q.H.

Course offers an introduction to problem solving with the use of computers. Students are expected to design, write, debug, and test programs in BASIC programming language. Course includes application of programming to a wide variety of problems, including statistical analysis of data, plotting, artificial intelligence, and text processing.

10.131 Introduction to Computer Science 4 Q.H.

This is a second course in programming, dealing with problem solving in the context of computing. Structured programming using PASCAL language. Correctness, clarity, and reliability of programs are stressed.

10.140 Mathematical Analysis IV-V 5 Q.H. (Prereq. Freshman calculus or equiv.)

This course is designed to help prepare transfer students for numerical analysis and differential equations. Calculus of one and several variables.

Linear algebra, vector-valued functions, multiple integration, infinite series, Taylor's theorem, and complex numbers.

10.144, 10.145 Calculus each 6 Q.H.

This course is designed to assist students in overcoming deficiencies in precalculus mathematics without losing ground in the 10.150 sequence. The two quarters review high school algebra, introduce trigonometric functions, and cover the material in 10.150 and 10.151. The five meetings per week include lecture and homework review sessions. Students are placed in this course by request or on the basis of their College Board scores and the results of an orientation week diagnostic test.

10.150 Calculus 4 Q.H.

This is a first course in calculus in one variable, primarily for engineering students. Functions, graphs, lines, limits, continuity, derivatives, chain rule, curve sketching, related rates, and maxima-minima problems are included.

10.151 Calculus 4 Q.H.

Continuation of 10.150. The integral in one variable with applications to areas, volumes, lengths, work, pressure, etc. Trigonometric, exponential, and logarithmic functions.

10.152 Calculus 4 Q.H.

Continuation of 10.151. Further techniques of integration, elementary differential equations, polar coordinates, and further applications are included.

10.153 Calculus 4 Q.H.

(Prereq. 10.152)

Topics include solid analytic geometry, vectors in 3-space, partial derivatives with applications, multiple integration.

10.154 Calculus 4 Q.H.

(Prereq. 10.153)

Topics include linear algebra, power series.

10.155 Mathematical Analysis 4 Q.H.

(Prereq. 10.154)

This course examines ordinary differential equations, with emphasis on methods of solution. Includes first-order equations, Laplace transform, second-order linear equations, and systems of first-order linear equations. (Intended primarily for engineering students.)

10.156 Mathematical Analysis 4 Q.H.

(Prereq. 10.155)

Topics include numerical methods for solving ordinary differential equations, Fourier series, and selected partial differential equations by separation of variables. (Intended primarily for engineering students.)

10.160 Calculus for Biology Majors I 4 Q.H.

This is a first course in calculus with applications to biology, ecology, and medicine. Differentiation, curve sketching, anti-differentiation, and exponential functions are included.

10.161 Calculus for Biology Majors II 4 Q.H.

(Prereq. 10.160)

Continuation of 10.160. Topics include exponential growth and decay; integration and area; rules for differentiation; and functions of several variables, with Lagrange multipliers, total differentials, and the method of least squares.

10.162 Calculus for Biology Majors III 4 Q.H.

(Prereq. 10.161)

Continuation of 10.161. Topics include the natural logarithm; trigonometric functions; techniques of integration, including numerical methods and differential equations, with separation of variables and qualitative methods.

10.170 Geometry 4 Q.H.

This course provides a careful look at classical Euclidean geometry, Hilbert's axioms for geometry, and models; geometries of Bolyai-Lobachevsky.

10.181 Calculus 5 Q.H.

This course is designed primarily for mathematics, physics, and chemistry majors. Syllabus for 10.181 through 10.183 includes derivatives and integrals of one-variable functions; applications to curve sketching, maxima and minima problems, area, moments, simple volumes, etc.; approximation methods including numerical integration, root finding, Taylor series, and power series. Students will also be required to master the use of the computer to make value tables and plot curves and to implement simple numerical algorithms.

10.182 Calculus II 5 Q.H.

(Prereq. 10.181) Continuation of 10.181.

10.183 Calculus III 5 Q.H.

(Prereq. 10.182) Continuation of 10.182

10.181 (H) Calculus for Honors Science Majors

4 Q.H.

An equivalent to 10.181, this course is designed to expose the student to a broader range of mathematical concepts while also presenting the basic calculus material that students learn in the nonhonors sections of 10.181. The course is especially intended for freshman honors science majors.

10.182, 10.183 Calculus for Honors Science

Majors

each 4 Q.H.

Continuation of 10.181 for winter and spring terms.

10.184 Calculus and Linear Methods I 4 Q.H.

(Prereq. 10.183)

The course focuses on methods of calculus and vector analysis to study curves, surfaces, and functions of several variables. Topics include parameterization of lines and planes, tangents and normal vectors, partial derivatives, maxima and minima problems, linear approximations, and tangent planes. Some linear algebra.

10.185 Calculus and Linear Methods II 4 Q.H.

(Prereq. 10.184)

Continuation of 10.184. Topics include multiple integration, line integrals, and exact differentials; various forms of Stoke's theorem; more linear algebra.

10.186 Differential Equations and Linear Methods I 4 Q.H.

The course focuses on ordinary differential equations and linear algebra. First-order equations, higher- (primarily second-) order linear differential equations, systems of linear differential equations. Linear algebra includes eigenvalues and eigenvectors, primarily for two-dimensional systems. Applications of ordinary differential equations.

10.187 Differential Equations and Linear Methods II 4 Q.H.

(Prereq. 10.186)
Topics include analysis of linear partial differential equations (wave equations, heat equation, and potential equation). Ordinary differential equations with boundary values. Fourier analysis, orthogonal functions. Also, numerical methods and other topics in ordinary differential equations.

10.206 Introduction to Analysis of Algorithms (Prereq. 10.186) 4 Q.H.

The course offers theoretical study of algorithm design, evaluation of algorithms, and other algorithmic concepts and techniques useful for computer programming. Topics include graph and matrix algorithms, testing primeness, factoring; evaluating greatest common divisors, linear Diophantine equations; evaluating square roots, logarithms, exponentials, etc.; truncation and round-off errors; random number generation; information organizational and retrieval; sorting.

10.207 Differential Equations 4 Q.H.

(Prereq. Nonmath majors; 10.183 or equiv.)
The course provides an introduction to first- and second-order differential equations, their solution by analytic, geometric, and numerical methods, and their application to problems in the physical and life sciences.

10.208 Probability I 4 Q.H.

(Prereq. 10.154 or 10.185)
Topics include probability functions for finite and infinite spaces; conditional probability and independence; discrete and continuous probability distributions for one or more random variables; expectation; moments; binomial, Poisson, and normal distributions; central limit theorem.

10.209 Probability II 4 Q.H.

(Prereq. 10.208)
Selected topics are studied, including introduction to stochastic processes, with emphasis on Poisson processes and Markov chains.

10.210 Introduction to Discrete Structures 4 Q.H.

Elementary concepts of combinatorial mathematics. Graph theory, enumeration algorithms, permutation groups, and coding theory. Application of these structures to various areas of computer science.

10.214 Computer Organization and Programming (Prereq. Two quarters of programming) 4 Q.H.

This is a basic course in computer organization and machine and assembly language programming. Topics include CPU and index registers, basic types of machine language instruction, programming in MIX and in assembly language. Subroutines and macros, assemblers, loaders, elementary list-processing techniques. Students are required to program several short exercises in assembly language and to undertake a term project at the end of the course.

10.215 Information Structures 4 Q.H.

(Prereq. Two quarters of programming)
The course focuses on basic information structures for representing and manipulating data in computer programming: arrays, lists, stacks, queues, deques, trees, binary trees. Applications to nonnumeric computations and problems in compiler construction are included. Searching and sorting methods and their relative merits are examined. Students are required to write programs to implement these structures on a computer.

10.220 Mathematical Statistics 4 Q.H.

(Prereq. 10.208)
Topics include estimation of parameters, confidence intervals, hypothesis testing, regression, sampling distributions. Introduction to analysis of variance and statistical decision theory.

10.221 Applied Analysis 4 Q.H.

(Prereq. 10.187)
Selected topics are chosen to demonstrate the application of mathematics to interesting physical and biological problems. Methods chosen from ordinary and partial differential equations, calculus of variations, Laplace transforms, singular perturbations, special functions, dimensional analysis, and other techniques of applied mathematics.

10.222 Applied Analysis 4 Q.H.

(Prereq. 10.221)
Continuation of 10.221

10.223 Numerical Analysis 4 Q.H.

(Prereq. Two years of calculus and one course in programming)
This is a computer-oriented introductory course with emphasis on appreciation of the difference between the theoretical existence of a solution and its numerical calculation. Topics covered: systems of linear equations, nonlinear equations, interpolation and approximation of functions. Students are required to program and analyze problems on a computer.

10.224 Numerical Analysis 4 Q.H.

(Prereq. 10.223)

Continuation of 10.223. Topics include numerical differentiation and integration, solution of ordinary differential equations, and other topics as time permits.

10.226 Functions of a Complex Variable 4 Q.H.

(Prereq. 10.184 or equiv.)

Topics include algebra and geometry of complex numbers; concepts of limit, continuity, and derivative in the complex domain; holomorphic functions, series, contour integration. Applications.

10.227 Functions of a Complex Variable II 4 Q.H.

(Prereq. 10.226)

Continuation of 10.226. Further topics may include conformal mapping, analytic continuation, Riemann surfaces, the Laplace transform and inverse transform, elliptic functions, applications.

10.230 Linear Programming 4 Q.H.

(Prereq. Nonmath majors; one year of college mathematics)

Introduction to concepts and techniques of linear programming, game theory, stochastic processes. Application to economics, social sciences, and other related fields.

10.232 Multivariate Statistics 4 Q.H.

(Prereq. 10.220)

The course examines methods of classification, estimation, and prediction based on several statistical variables.

10.235 Automata Theory and Formal Languages

(Prereq. 10.214 and 10.215 or equiv.) 4 Q.H.

Topics include finite state machines and regular expressions, context-free grammars. Parsing of context-free languages. Context-sensitive grammars, pushdown stores, stack machines and linear-bounded automata. Turing machines, undecidability, description of computation using list structures, program machines and programs.

10.236 Artificial Intelligence 4 Q.H.

(Prereq. 10.215 or 05.202)

The course provides analysis of current computer programs dealing with problems such as theorem proving, chess playing, general problem solvers, robotics, symbolic computation, perceptrons, self-reproducing automata, and parallel machines.

10.240 Mathematical Models in the Life Sciences

(Prereq. One year of calculus) 4 Q.H.

The focus of this course is the derivation and solution of mathematical models in biology, psychology, and the social sciences. Topics may include population dynamics, diffusion processes, pollution control systems, neural networks, and mathematical genetics.

10.241 Mathematical Models in the Life Sciences

4 Q.H.

(Prereq. 10.240)

Continuation of 10.240

10.246 Linear Algebra I 4 Q.H.

(Prereq. 10.187 or permission of instructor)

Topics include vectors and vector spaces, including function spaces, subspaces. Lengths, angles, scalar products; volumes, determinants. Linear independence and dependence, dimension, linear and affine maps, kernel and image. Algorithms: row operations, double triangular form, inversion. Introduction to linear maps. In particular, characteristic polynomials, eigenvalues, and eigenvectors in low dimensions.

Note: Students who have not completed 10.181-187 should inform the course instructor of their backgrounds.

10.247 Linear Algebra II 4 Q.H.

(Prereq. 10.246)

The course focuses on detailed study of linear maps. Part I: Symmetric maps and quadratic forms. Isometries and skew-symmetric maps. Decomposition of general linear maps using symmetric maps and isometries. Part II: Polynomials evaluated on linear maps. Generalized eigenspaces. Jordan form. As time permits, an introduction to computational methods with emphasis both on geometry underlying algorithms and on practical advantages and limitations. A survey of related areas in mathematics in which linear ideas play a role is included.

Note: Upper-level students who have not completed the 10.181-10.187 program may take 10.246-10.247. Such students should inform the course instructor regarding their particular backgrounds.

10.250 Analysis I 4 Q.H.

(Prereq. 10.187 or consent of instructor)

The course examines the theoretical foundations of calculus: limits, measure, continuity, and related concepts. Analysis I and II are intended to serve as a bridge between the 10.181-187 calculus sequence and the more advanced analysis courses, such as 10.221-2, 10.226, and 10.264-5.

10.251 Analysis II 4 Q.H.

(Prereq. 10.250)

Continuation of 10.250. The course focuses on calculus, applying the concepts introduced in Analysis I.

10.254 Introduction to Groups and Their**Applications 4 Q.H.**

Topics include examples of groups (symmetry groups, permutation groups, matrix groups, cyclic groups) and their subgroups. Finite groups and orders of subgroups. Homomorphisms and normal subgroups. Applications to some of the following, depending on time and interest: geometry, number theory, crystallography, physics, and combinatorics.

10.256 Topics in Rings, Fields, and Number**Theory** 4 Q.H.

Topics include algebraic properties of the integers and rational, real, and complex numbers. Commutative rings, ideals, integral domains and other quotient fields. Polynomial rings. Quadratic extension fields. Gaussian integers. Other topics as time permits.

10.257 Optimization and Mathematical Game**Theory** 4 Q.H.

(Prereq. Some linear algebra, e.g., 10.246, or consent of instructor.)

Topics include convex sets in Euclidean n -space, linear and nonlinear programming, zero-sum games, dynamic programming. Students are encouraged to program selected solution methods for a computer.

10.264 Recent Ideas in Geometry 4 Q.H.

(Prereq. 10.251 and 10.247 or consent of instructor)

Topics chosen by the instructor may vary each year. Topological classification of surfaces, theory of critical points and singularities of mappings, topological study of vector fields, knot theory, graph theory, differential geometry of surfaces, algebraic curves, homotopy.

10.265 Recent Ideas in Geometry 4 Q.H.

(Prereq. 10.264) Continuation of 10.264

10.271 Foundations of Mathematics 4 Q.H.

Topics include development, structure, and use of the number systems; peano postulates for integers; construction of negative numbers and rationals; development of real and complex numbers; introduction to model theory and the existence and use of alternative number structures: hyperintegers; calculus with infinitesimals.

10.272 Foundations of Mathematics 4 Q.H.

Course material includes set theory; rules for set-formation; the axiom of choice and its role in mathematics; transfinite cardinal and ordinal numbers and their arithmetic; axiomatizations of set theory.

10.273 History of Mathematics 4 Q.H.

Topics include development of the various branches of mathematics; lives of outstanding mathematicians; growth of mathematical knowledge and its relation to culture.

10.274 Number Theory 4 Q.H.

(Prereq. 10.246 or consent of instructor)

An introduction to the elementary methods of analytic number theory, this course focuses on divisibility; congruences; arithmetical and multiplicative functions; quadratic reciprocity; and equivalent formulations of the prime number theorem.

10.281-10.289 Directed Study 4 Q.H.

(Prereq. Consent of Instructor)

Programs of directed study, held one or more quarters, are available for highly motivated students who wish to explore mathematical situations and theories in depth. Directed study

can be used as an opportunity to examine familiar material in fresh ways or to explore new material that is not offered in formal courses. It is hoped that directed study programs will provide students, strong in mathematics and the related sciences, a chance to develop the art and skill needed to work independently and creatively in mathematics.

Note: Students strong in mathematics are permitted to enroll in graduate courses in mathematics.

10.295, 10.296, 10.297, 10.298 Honors Program**(each) 4 Q.H.**

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

10.407 College Algebra and Trigonometry I

4 Q.H.

Topics include fundamental algebraic operations; complex numbers; radicals and exponents; functions; linear and quadratic equations; irrational equations; inequalities; variation; roots of polynomial equations.

10.408 College Algebra and Trigonometry II**(Prereq. 10.407)**

4 Q.H.

Topics include Logarithms; trigonometric functions of angles in degrees and radians; trigonometric identities and equations; right triangles; oblique triangles; complex numbers in trigonometric form; systems of equations; determinants.

10.420 Calculus I

4 Q.H.

(Prereq. 10.408)

Plane analytic geometry; differentiation of algebraic functions; rate, motion, maximum and minimum problems; derivations of higher order; curve sketching; basics in functions, limits, and continuity.

10.421 Calculus A

4 Q.H.

(Prereq. 10.420)

Topics include applications of derivatives to curve-sketching; antidifferentiation; the definite integral, with applications; calculus of non-algebraic functions—logarithmic, exponential, and trigonometric; calculus of inverse trigonometric functions; techniques of integration; indeterminate forms; L'Hôpital's rule.

10.422 Calculus B

4 Q.H.

(Prereq. 10.421)

Topics include polar coordinates; vectors in a plane; calculus of functions of several variables; partial differentiation; multiple integrals; infinite series; vector analysis.

10.423 Differential Equations

4 Q.H.

(Prereq. 10.422)

Topics include ordinary differential equations—standard types of the first order, linear differential equations, especially with constant coefficients; Laplace transforms; series solutions of differential equations; Fourier series and orthogonal functions.

Physics

Courses are listed according to level and degree of specialization and are not in numerical order. General interest courses have no prerequisites and may be used to satisfy College of Arts and Sciences distribution requirements in science. Introductory physics courses are basic first-year physics lecture courses; the corresponding laboratories are listed under introductory physics laboratories. Advanced physics and astronomy courses require one year of introductory physics and may be used to satisfy degree requirements for physics majors. Courses marked with a dagger (†) are offered for students in the full-time program in Lincoln College; they do not fulfill credit requirements in the College of Arts and Sciences.

General Interest Courses

11.109 Physics in Music 4 Q.H.

This course discusses the physical principles involved in producing, recording, and reproducing music. Topics include explanations of the operation of various instruments in terms of the basic properties of resonances and waves; physical and psychological response of the ear; the physical basis of the modern (well-tempered) system of tuning; the operation of microphones, amplifiers, loudspeakers, tape recorders, radios, and other devices.

11.180 Introduction to Astronomy I 4 Q.H.

The first quarter of a two-quarter sequence, this course offers the nonscience student an introduction to modern astronomical ideas. Topics include introduction to the cosmos; tools of the astronomer (atoms, the nature of light and radiation, telescopes, space astronomy); the earth in space; our solar system (origin and future of the solar system, the planets and other bodies, the latest from spacecraft flights, the sun as our bridge to the stars); the question of life in the universe.

11.181 Introduction to Astronomy II 4 Q.H. (Prereq. 11.180)

Topics include properties of stars: life and death of stars (Hertzsprung Russell Diagram, birth of stars, main sequence, red giants, white dwarfs, supernovae, neutron stars, black holes); our galaxy — the Milky Way; galaxies; quasars, cosmology (the expanding universe, the big bang, the future of the universe).

93.171 Introduction to Science I 4 Q.H.

93.171 and 93.172 form a two-quarter sequence for nonscience majors, providing an interdisciplinary treatment of the basic ideas of the natural sciences. Concepts such as energy, gravity and the atom are discussed, followed by a consideration of the ways in which atoms combine to form the substances that comprise matter.

93.172 Introduction to Science II 4 Q.H. (Prereq. 93.171)

A continuation of 93.171, this part of the course discusses life, its origin from inanimate surroundings, cells, and some of the cellular processes important to living things.

Introductory Physics Courses

11.117 Physics for Science Majors I 4 Q.H.

(Prereq. 10.181 or equiv., may be taken concurrently)

Topics include mechanics: kinematics, Newton's laws, circular motion, work energy, linear momentum. To take the laboratory for this course, register for 11.147 concurrently.

11.118 Physics for Science Majors II 4 Q.H.

(Prereq. 11.117, 10.182 equiv., may be taken concurrently)

Topics include rotational motion, angular momentum, harmonic motion, wave motion, sound, heat and thermodynamics, kinetic theory. To take the laboratory for this course, register for 11.148 concurrently.

11.119 Physics for Science Majors III 4 Q.H.

(Prereq. 11.117; 10.183 or equivalent, may be taken concurrently)

Topics include electricity and magnetism; circuits; electromagnetic waves; topics in modern physics. To take the laboratory for this course, register for 11.149 concurrently.

11.126 Physics Review for Engineering Students 6 Q.H.

(Prereq. One year of college physics; knowledge of elementary calculus)

This course offers an intensive review for students who have had previous college physics courses not equivalent to the engineering sequence 11.203-11.206. Topics include fundamentals of mechanics, electricity, and magnetism with emphasis on the use of vectors and elementary calculus. Passing this course is equivalent to passing 11.205 and 11.206.

11.136 Basic Physics I 4 Q.H.

Topics include the physical properties of gases and condensed matter; force and pressure; hydrostatics; ideal and real gases; condensation and evaporation; surface tension; osmosis and fluid flow. Laboratory is an integral part of the course.

11.137 Basic Physics II 4 Q.H. (Prereq. 11.136)

A continuation of 11.136, this course focuses on electric circuits and current flow; AC circuits and measurements with the oscilloscope; atomic structure and spectroscopy; spectrophotometry; nuclear physics.

11.171 Physics for the Life Sciences I 4 Q.H.
Topics include vector addition of force, principles of statics; Newton's second law, kinetic and potential energy; pressure static properties of fluids, fluid flow. To take the laboratory for this course, register for 11.173 concurrently.

11.172 Physics for the Life Sciences II 4 Q.H.
(Prereq. 11.171)
Topics include wave motion; sound; light; optics; static electricity; DC circuits; magnetism. To take the laboratory for this course, register for 11.174 concurrently.

11.175 Physics for the Life Sciences III 4 Q.H.
(Prereq. 11.171)
Topics include temperature; gas laws; properties of liquids (surface tension and osmotic pressure); properties of solids; thermal physics; Coulomb's law; atomic and nuclear physics.

11.203 Physics for Engineering Students I 4 Q.H.
(Prereq. 10.150 or equiv. may be taken concurrently)
The first quarter of a four-quarter sequence intended primarily for engineering students, this course covers mechanics; kinematics; dynamics; Newton's laws; work; energy; linear momentum; collisions.

11.204 Physics for Engineering Students II 4 Q.H.
(Prereq. 11.203; 10.151 or equivalent may be concurrently)
A continuation of 11.203, this course focuses on rotational dynamics, angular momentum, statics, harmonic motion, wave motion, sound, heat, and the First Law of Thermodynamics.

11.205 Physics for Engineering Students III 4 Q.H.
(Prereq. 11.204; 10.152 or equivalent, may be concurrently)
A continuation of 11.204, the focus of this course is on electricity; electrostatics; Gauss's law; electric fields; potential; capacitance; resistance; current Ohm's law; circuits; the magnetic field.

11.206 Physics for Engineering Students IV 4 Q.H.
(Prereq. 11.205; 10.153 or equivalent, may be taken concurrently)
A continuation of 11.205, this course covers magnetism: Ampere's law, induction, inductance, magnetic energy; electromagnetic oscillations, electromagnetic waves, polarization; ray optics: reflection, refraction, mirrors and lenses; wave optics: interference, diffraction, gratings.

11.417† Physics I 4 Q.H.
(Prereq. 10.407, may be taken concurrently)
Topics include kinematics and dynamics of particle motion; Newton's laws; projectile and circular motion; conservation laws for momentum and energy; rotational motion; simple harmonic motion.

11.418† Physics II 4 Q.H.
(Prereq. 11.417; 10.408, may be taken concurrently)

Topics include wave motion; intensity; interference phenomena; Doppler effect; vibrating systems; temperature; heat; change of state; heat transfer; kinetic theory of gases; general gas laws; thermodynamics.

11.419† Physics III 4 Q.H.
(Prereq. 11.418)
Topics include electrostatics; magnetism; magnetic induction; induced currents; direct- and alternating-current circuits; properties of light; reflection; refraction; dispersion; optical systems; diffraction; polarization.

11.420† Physics IV 4 Q.H.
(Prereq. 11.419)
Course focuses on static electric and magnetic fields; experimental basis for Maxwell's equations; electromagnetic waves.

Introductory Physics Laboratories

11.110 Physics Laboratory for Engineering Students I 1 Q.H.
(Prereq. 11.205)
This course is the first of a two-quarter laboratory sequence in which the student performs experiments from various fields of physics.

11.111 Physics Laboratory for Engineering Students II 1 Q.H.
(Prereq. 11.110 and 11.206)
This course is a continuation of 11.110.

11.147 Physics Laboratory for Science Majors I 1 Q.H.
(Prereq. 11.117 concurrently)
Focus is on laboratory experiments related to topics covered in 11.117.

11.148 Physics Laboratory for Science Majors II 1 Q.H.
(Prereq. 11.147; 11.118 concurrently)
Focus is on laboratory experiments related to topics covered in 11.118.

11.149 Physics Laboratory for Science Majors III 1 Q.H.
(Prereq. 11.147; 11.119 concurrently)
Focus is on laboratory experiments related to topics covered in 11.119.

11.173 Physics Laboratory for the Life Sciences I 1 Q.H.
(Prereq. 11.171 concurrently)
This course is the first quarter of a two-quarter laboratory sequence accompanying 11.171 and 11.172.

11.174 Physics Laboratory for the Life Sciences II 1 Q.H.
(Prereq. 11.173, 11.172, or 11.175 concurrently)
This course is a continuation of 11.173.

11.473† Physics Laboratory I 2 Q.H.
(Prereq. 11.417; 11.418 concurrently)
This course covers experiments from various

physics topics that have been covered in 11.417 and, concurrently, in 11.418.

11.474† Physics Laboratory II 2 Q.H.
(Prereq. 11.473; 11.418; 11.419 concurrently)
This course is a continuation of 11.473, with experiments from topics in 11.418 and 11.419.

Advanced Physics and Astronomy Courses

11.127 Intermediate Mechanics 4 Q.H.
(Prereq. 11.118 and 11.119; 10.184 concurrently)
Topics include classical mechanics in two and three dimensions; a review of Newton's laws; special emphasis on conservation theorems for energy, momentum and angular momentum; harmonic and wave motion.

11.128 Electric and Magnetic Fields
(Prereq. 11.127; 10.185 concurrently)
This course focuses on the basic concepts of electric and magnetic fields, including electric and magnetic fields in free space and materials; Maxwell's equations in integral form.

11.182 Introduction to Astrophysics and Cosmology 4 Q.H.
(Prereq. Three quarters of elementary physics)
The purpose of this course is to introduce the student to current ideas in astrophysics and cosmology, with emphasis on recent advances in this field. Topics include tools of the astronomer (gamma- X-, UV-, optical-, infrared-, radio-telescopes, spectroscopes, spacecrafts, etc.); solar system; stellar properties (site luminosity); stellar spectra; Hertzsprung-Russell diagram; stellar energy sources (gravitational, nuclear); evolution of stars (birth, main sequence, red giants, white dwarfs, planetary nebulae, supernovae, neutron stars and pulsars, black holes and gravitational collapse); methods of interstellar and intergalactic distance measurement; our Milky Way Galaxy; extragalactic objects (galaxies, clusters of galaxies, radio galaxies, quasars); cosmology (Olber's paradox; recession of galaxies, big bang theory, cosmic background radiation, formation of galaxies, the future of the universe).

11.200 Classical Mechanics 4 Q.H.
(Prereq. 11.127 and 10.186)
This course covers advanced topics in classical mechanics, including Vector kinematics; harmonic oscillator and resonance; generalized coordinates; Lagrange's equations; central forces and the Kepler problem; rigid body motion.

11.208 Mathematical Physics 4 Q.H.
(Prereq. 11.119 and 10.185; 10.187 concurrently)
Topics include review of linear algebra and vector calculus; special functions and partial differential equations of physics; potential theory; functions of a complex variable.

11.21A (B, C, etc.) Independent Study 1 Q.H.

11.22A (B, C, etc.) Independent Study 2 Q.H.
11.23A (B, C, etc.) Independent Study 3 Q.H.
11.24A (B, C, etc.) Independent Study 4 Q.H.
11.211 Electricity and Magnetism I 4 Q.H.
(Prereq. 11.128; 11.208 or equiv.)

The first of a two-quarter sequence in electromagnetic theory, this course covers Maxwell's equations and their experimental basis; electrostatics and magnetostatics; the electromagnetic field in empty space; electromagnetic waves.

11.212 Electricity and Magnetism II 4 Q.H.
(Prereq. 11.211 or equiv.)

A continuation of 11.211, this course focuses on energy and momentum in the electromagnetic field; electrodynamics; the interaction of matter and the field; radiation.

11.220 Thermodynamics and Kinetic Theory
(Prereq. 11.119 or 11.206; 10.185) 4 Q.H.

Topics include First and Second Laws of Thermodynamics; entropy and equilibrium; thermodynamic potentials; elementary kinetic theory; statistical mechanics and the statistical interpretation of entropy.

11.221 Wave Motion and Optics 4 Q.H.
(Prereq. 11.128)

Topics include harmonic and coupled oscillators, wave equation; geometrical and physical optics; interference, diffraction, optics of solids, amplification of light; lasers.

11.230 Modern Physics 4 Q.H.
(Prereq. 11.119, 11.206, or equiv.)

The course provides a review of experiments demonstrating the atomic nature of matter, the properties of the electron, the nuclear atom, the wave-particle duality, spin, and the properties of elementary particles. The course discusses, mostly on a phenomenological level, such subjects as atomic and nuclear structure, properties of the solid state, and elementary particles.

11.231 Physics Review for Re-entry Students
(Prereq. Two years of physics) 4 Q.H.

This is a review course on the material covered by 11.200, 11.220 and 11.221. Topics include Vector kinematics; generalized coordinates; Lagrange equations; harmonic and coupled oscillators, wave equation; physical optics, interference, diffraction, optics of solids, lasers; entropy and equilibrium, thermodynamic potentials; elementary kinetic theory; statistical mechanics.

11.240 Quantum Mechanics I 4 Q.H.
(Prereq. 11.230 or 12.170; 11.208 or equiv.)

The first of a two-quarter sequence in quantum mechanics, this course focuses on observations of macroscopic and microscopic bodies; the uncertainty principle; wave-particle duality; probability amplitudes; Schrodinger wave theory; one-dimensional problems.

11.241 Quantum Mechanics II 4 Q.H.

(Prereq. 11.240)

A continuation of 11.240, this course covers discrete and continuous states; Schrodinger equation in three dimensions; angular momentum; general theory of quantum mechanics; applications.

11.246 Electronics for Scientists I 4 Q.H.

11.246 and 11.247 form a two-quarter sequence covering electronic techniques for experimental research in many different fields of science. Topics include principles of semiconductor devices; analog techniques (amplification, feedback, integration); digital techniques (counting, multiplexing, logic); design of electronic subsystems (analog-to-digital converters, phase-sensitive detectors, data-logging systems); understanding specifications of commercial electronic equipment. Lab examples make use of up-to-date integrated and discrete devices, such as are currently used in the electronic industry.

11.247 Electronics for Scientists II 4 Q.H.

(Prereq. 11.246)

This course is a continuation of 11.246.

11.260 Wave Laboratory 4 Q.H.

(Prereq. 11.128 or 11.206)

This course offers a general treatment of the problems of mechanical and electromagnetic radiation as wave phenomena. Topics include the differential wave equation and its application to selected topics; interference and diffraction theory from the standpoint of the Huygens-Fresnel and Kirchhoff formulations; selected

experiments in acoustics, optics, and microwaves to illustrate these problems.

11.272 Modern Physics Laboratory 4 Q.H.

(Prereq. 11.230 or permission of instructor)

This course presents experiments investigating the atomic nature of matter, the properties of the electron, and special relativity. The work involves vacuum system techniques and machine-shop practice.

11.273 Advanced Physics Laboratory 4 Q.H.

(Prereq. 11.246 and 11.247)

This course presents special projects in modern experimental physics; including electronic instrumentation used in measuring physical quantities and use of microprocessors.

11.282 Introduction to Solid State Physics 4 Q.H.

(Prereq. 11.230 or 12.170; 11.220 or equiv.)

This course offers a semi-classical treatment of the thermal, magnetic, and electrical properties of crystalline solids. Topics include X-ray diffraction and the reciprocal lattice; elasticity and lattice vibrations; specific heat; properties of insulators; magnetism in insulators and metals; introduction to the band theory of metals.

11.285 Introduction to Nuclear Physics 4 Q.H.

(Prereq. 11.230)

Topics include nuclear structure; nuclear masses; radioactivity; nuclear radiation; interaction of radiation and matter; detectors; fission; nuclear forces; elementary particles.

11.295, 11.296, 11.298 Junior-Senior Honors**Program (each) 4 Q.H.**

For prerequisites and other details, see the section on the Junior-Senior Honors Project on page 5.

Chemistry

12.106 General Chemistry 5 Q.H.*

This course, designed for nonchemistry majors, focuses on basic concepts and definitions: the mole concept and chemical stoichiometry, states of matter, solutions, periodicity of elements, atomic structure, chemical bonding and reactions.

12.107 General Chemistry 5 Q.H.*

(Prereq. 12.106)

This course, for students *who will not* be taking 12.144, Organic Chemistry, covers chemical kinetics and equilibria, elementary thermodynamics, electrolysis and electrochemistry, chemistry of the representative elements, nuclear chemistry, and introduction to organic chemistry and biochemistry.

12.111 General Chemistry 4 Q.H.*

The course examines basic principles of

inorganic and organic chemistry and how they relate to human body processes.

12.112 General Chemistry 4 Q.H.*

(Prereq. 12.101)

The course focuses on biochemistry principles.

12.114 General Chemistry 4 Q.H.

Primarily for engineering students. Introduction to the principles of chemistry, focusing upon the states and structure of matter and chemical stoichiometry.

12.115 General Chemistry 4 Q.H.

(Prereq. 12.114)

Primarily for engineering students, the course offers an introduction to the principles of chemistry, focusing upon chemical equilibria, the nature of some common materials, and energy considerations in chemical and nuclear transformations.

12.118 General Chemistry Laboratory 1 Q.H.*

Optional laboratory for 12.115, General Chemistry for engineering students. Experiments pertaining to lecture material.

12.119 General Chemistry **5 Q.H.***
(Prereq. 12.106)

For nonchemistry majors *who will* be taking 12.144, Organic Chemistry. Subjects covered include chemical kinetics and equilibria; acids and bases; elementary thermodynamics and kinetics; electrolysis and electrochemistry; chemistry of the representative elements; and nuclear chemistry.

12.124 General Chemistry **4 Q.H.**
Similar to 12.127, but without laboratory. (Not available to majors from chemistry, biology, or pharmacy/allied health sciences.)

12.125 General Chemistry **4 Q.H.**
(Prereq. 12.124)

Similar to 12.128, but without laboratory. (Not available to majors from chemistry, biology, or pharmacy/allied health sciences.)

12.127 General Chemistry **5 Q.H.***

For chemistry majors and selected students in other majors, such as biology, physics, etc. Course focuses on basic concepts and definitions, moles, gas laws, stoichiometry, atomic structure, periodic properties, chemical bonding.

12.128 General Chemistry **5 Q.H.***
(Prereq. 12.127 or 12.124)

Topics include solutions, chemical kinetics, chemical equilibrium, chemical thermodynamics, electrochemistry, chemistry of the representative elements.

12.129 The Chemical Elements **5 Q.H.***
(Prereq. 12.115, 12.119, 12.128, or equiv.)

For chemistry majors and selected students in other majors. The principle concepts of chemistry (thermodynamics, chemical bonding, kinetics) are applied to a systematic survey of the characteristic behavior of the chemical elements and their compounds.

12.144 Organic Chemistry **5 Q.H.***
(Prereq. 12.119, 12.128, or equiv.)

For nonchemistry majors. Course covers nomenclature, preparation, properties, and reactions of common organic compounds.

12.145 Organic Chemistry **5 Q.H.***
(Prereq. 12.144)

Continuation of 12.144.

12.147 Organic Chemistry **4 Q.H.***
(Prereq. 12.115)

For chemical engineering majors. Topics include compounds: preparation, properties, and reactions of the more common classes of open chain compounds; electronic interpretation of structures and reactions; petrochemicals; synthetic resins; carbohydrates; fats; and proteins.

12.148 Organic Chemistry **4 Q.H.***
(Prereq. 12.147)

Topics include aromatic compounds: preparation, properties, and reactions of the more common classes of aromatic compounds; electronic interpretation of structures and reactions of aromatic compounds; dyes, commercial solvents, and important industrial products. A brief introduction to alicyclic and heterocyclic compounds.

12.153 Organic Chemistry **3 Q.H.**
(Prereq. 12.129)

For chemistry majors and selected students in other majors. Course covers synthesis and properties of aliphatic and aromatic hydrocarbons and their functional derivatives; correlation between the structure of organic compounds and their physical and chemical properties; and electronic interpretation of organic reactions.

12.154 Organic Chemistry **5 Q.H.***
(Prereq. 12.153)

Continuation of 12.153.

12.155 Organic Chemistry **5 Q.H.***
(Prereq. 12.154)

Continuation of 12.154.

12.161 Physical Chemistry **4 Q.H.***
(Prereq. 10.153 or 10.184, 11.119 or 11.205, or equiv.)

Chemical thermodynamics.

12.162 Physical Chemistry **4 Q.H.***
(Prereq. 12.161)

Topics include phase equilibria, solutions, kinetic theory of gases, chemical kinetics.

12.166 Physical Chemistry **3 Q.H.**
(Prereq. 10.153 or 10.184, 11.119 or 11.205, or equiv.)

Similar to 12.161, but without laboratory.

12.168 Physical Chemistry **4 Q.H.***
(Prereq. 12.162 or 12.169)

Course covers quantum chemistry, particles and waves, Schrodinger wave mechanics, the chemical bond.

12.169 Physical Chemistry **3 Q.H.**
(Prereq. 12.161 or 12.166)

Similar to 12.162, but without laboratory.

12.170 Physical Chemistry **3 Q.H.**
(Prereq. 12.162 or 12.169)

Similar to 12.168, but without laboratory.

12.171 Analytical Chemistry **4 Q.H.***
(Prereq. 12.119 or equiv.)

For nonchemistry majors. The course encompasses the theories, principles, and applications of volumetric, gravimetric, and instrumental methods of analysis.

12.172 Analytical Chemistry **5 Q.H.***
(Prereq. 12.119, 12.128, or equiv.)

For chemistry majors and selected students in

other majors. Course covers principles, applications, and methods of analytical chemistry. Selected topics in data interpretation and chemical measurement are included.

12.179 Instrumental Analysis 5 Q.H.*
(Prereq. 12.162 and 12.172)

Course focuses on principles, methods, and applications of selected topics in electrometric, chromatographic and opticometric chemical analysis.

12.180 Chemical Oceanography 4 Q.H.*
(Prereq. 12.115, 12.119, 12.128, or equiv.)

The course examines chemistry of seawater and sea sediments; methods and techniques of chemical oceanography.

12.181 Instrumental Analysis 3 Q.H.
(Prereq. 12.171, 12.172, or equiv.)

For non-chemistry majors only. Similar to 12.179, but without laboratory.

12.186 Review of Chemistry for Re-entry Students I 4 Q.H.

(Prereq. Chemistry through Physical Chemistry) Designed for students who have been away from chemistry for some time, the course offers a review of fundamental principles of the various areas of chemistry. Topics include stereochemistry and basic physical chemistry.

12.187 Review of Chemistry for Re-entry Students II 4 Q.H.
(Prereq. 12.186)

Continuation of 12.186 with emphasis on spectroscopic techniques.

12.213 Inorganic Chemistry 4 Q.H.
(Prereq. 12.168)

Topics include atomic properties of free atoms and ions. Ionic bonding and the structure of the solid state. The Madelung calculation; the Born-Haber and other thermodynamic cycles. Valence-bond, molecular, orbital, and crystal field theories of bonding. Stereochemistry of compounds of representative elements. Electron-deficient compounds. Spectral and magnetic properties of transition metal compounds.

12.221 Polymer Chemistry I 3 Q.H.
(Prereq. 12.155 or equiv.)

The course provides an introduction to polymers. Major emphasis on synthesis. Step-reaction, chain-reaction, and ring-opening polymerizations. Copolymerization. Three-dimensional polymers and cross-linking. Corresponds to graduate course 12.901.

12.222 Polymer Chemistry II 3 Q.H.
(Prereq. 12.162 or equiv.)

Topics include physical chemistry of polymers in solution and bulk. Molecular characterization. Mechanical and physical properties in the glassy, rubbery, viscous, and semicrystalline states. Corresponds to graduate course 12.902.

12.223 Polymer Chemistry III 3 Q.H.
(Prereq. 12.221 and 12.222)

Topics include industrial practice, polymer processing, fibers, elastomers, coatings, adhesives, reinforced plastics. Relationship of polymer structure to usage. Corresponds to graduate course 12.903.

12.252 Advanced Organic Chemistry I 3 Q.H.
(Prereq. 12.155 or 12.145)

Course focuses on organic structure and reactions. Corresponds to graduate course 12.881.

12.253 Identification of Organic Compounds 3 Q.H.*
(Prereq. 12.145 or 12.155)

The course examines qualitative analysis of organic compounds and mixtures, using physical, chemical, and instrumental methods.

12.254 Advanced Organic Chemistry II 3 Q.H.
(Prereq. 12.252)

The course examines organic structure and reactions. Corresponds to graduate course 12.862.

12.255 Advanced Organic Chemistry III 3 Q.H.
(Prereq. 12.254)

The course focuses on organic structure and properties. Corresponds to graduate course 12.863.

12.256 Spectrophotometric Identification of Organic Compounds 3 Q.H.
(Prereq. 12.155 or equiv.)

The course examines spectrometric identification of organic compounds. Corresponds to graduate course 12.866.

12.257 Advanced Analytical Chemistry III 3 Q.H.
(Prereq. 12.179 or equiv.)

The course examines analytical separations. Corresponds to graduate course 12.821.

12.258 Advanced Analytical Chemistry II 3 Q.H.
(Prereq. 12.179)

Electroanalytical. Corresponds to graduate course 12.882.

12.259 Advanced Analytical Chemistry I 3 Q.H.
(Prereq. 12.179 or equiv.)

The course covers optical methods of analysis. Corresponds to graduate course 12.823.

12.262 Advanced Physical Chemistry I 3 Q.H.
(Prereq. 12.168)

The course examines chemical thermodynamics. Corresponds to graduate course 12.881.

12.263 Advanced Physical Chemistry II 3 Q.H.
(Prereq. 12.168)

The course focuses on atomic and molecular structure. Corresponds to graduate course 12.885.

12.264 Advanced Physical Chemistry III 3 Q.H.
(Prereq. 12.168)

The course focuses on chemical kinetics. Corresponds to graduate course 12.893.

12.266 Advanced Inorganic Chemistry I 3 Q.H.
(Prereq. 12.213)

The course covers application of quantum chemistry to inorganic systems. Corresponds to graduate course 12.841.

12.267 Advanced Inorganic Chemistry II 3 Q.H.
(Prereq. 12.266)

Continuation of 12.266. Corresponds to graduate course 12.842.

12.268 Advanced Inorganic Chemistry III 3 Q.H.
(Prereq. 12.267)

Chemistry of the solid state. Corresponds to graduate course 12.843.

12.274, 12.275, 12.276, 12.277, 12.278, 12.279.**Undergraduate Research (each) 4 Q.H.**

For chemistry majors. The course offers original experimental work under the direction of a staff member. Participation may begin in the middle

year and will normally continue through the senior year. A minimum of a two-quarter commitment is required for participation. Approval of the administering committee is required.

12.284 Advanced Chemical Synthesis 3 Q.H.*
Special projects in the synthesis of organic and/or inorganic compounds.**12.286 Advanced Chemical Measurements (Prereq. 12.168 and 12.179) 3 Q.H.***

Laboratory problems in analytical and/or physical chemistry are examined.

12.288 Special Topics 4 Q.H.
(Prereq. 12.168)**12.295, 12.296, 12.297, 12.298 Junior-Senior Honors Program (each) 4 Q.H.**

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Earth Sciences

16.109 Environmental Geology 4 Q.H.

The course discusses how geologic processes acting at the earth's surface interact with the human environment. Topics include river and ocean flooding, coastal erosion, landslides, land-use planning, and waste disposal.

16.110 Geologic Hazards and Resources 4 Q.H.

The course discusses how geologic processes originating deep inside the earth interact with the human environment. Topics include global crustal movements, volcanic and earthquake hazards, mineral resources, coal and oil, geothermal energy, resource management, and disposal of radioactive wastes.

16.130 Marine Resources 4 Q.H.

The course provides a qualitative and quantitative survey of renewable and nonrenewable resources from the sea. Aspects covered include offshore oil and gas utilization, marine minerals, and tidal power; coastal zone recreational resources, including polluted beaches and artificial fishing reefs.

16.131 Physical Oceanography 4 Q.H.

The course provides a description of the physical properties and composition of sea water, waves, tides, and ocean currents. The course discusses how these properties are measured by oceanographers and how they influence the earth's environment and climate.

16.132 Biological Oceanography 4 Q.H.**

Topics include the productivity of animal and plant life in the various zones of the ocean; the growing economic importance of the oceans as a source of food for the expanding world population.

16.139 Geological Oceanography 4 Q.H.

In this course the form of the ocean basins and their margins is related to the major processes forming them. Emphasis is placed on local landforms, including New England beaches, spits, barrier islands, and the continental shelf.

16.161 Observational Astronomy 4 Q.H.

The course offers an introduction to the night sky by confrontation technique. Identification of the permanency of the circumpolar region. A systematic analysis of the available hour-angle constellations. Relevant supportive data provided for each nightly viewing. Continuous records of the characteristic behavior of the sun, moon and available naked-eye planets. Periodic out-of-doors viewing sessions with binoculars and telescopes (amateur quality), especially on occasions of special phenomena, i.e., meteor showers and comets. Explanatory instructional information during open portions of class periods by lecture, lecture-demonstration, or planetary sessions.

16.165 Planetary Astronomy 4 Q.H.

This course focuses on astronomy of the solar system. Topics include description of the planets and other objects with discussion of how our understanding has evolved from the days of naked-eye observation to the present era of interplanetary probes.

16.166 Observational Astronomy 5 Q.H.

An introduction to systematic observation of the night sky, this course emphasizes observation and description of the patterns and motions of celestial bodies as seen with the unaided eye. Nightly viewing sessions required; supplemented by training sessions in the planetarium.

* Lab fee required.

**Including lab.

16.191 Meteorology 4 Q.H.
Atmospheric factors and processes which determine weather. Examples used to illustrate general concepts will be drawn from the New England region.

16.192 North America and the Ice Age 4 Q.H.
This course focuses on description and history of ice-sheets that have advanced and retreated across the northern U.S.A. and Canada during the last three million years. Topics include evidence of past climatic change and predictions of future change, fluctuating sea-levels, and the impact of these changes on man and the environment.

16.201 Physical Geology 4 Q.H.
The course offers a systematic study of the materials comprising the earth. Topics emphasized include the processes by which rock is formed, transported, altered, and destroyed, as well as the nature and development of landscape.

16.202 Historical Geology 4 Q.H.
The physical and biological history of the earth is traced through geologic time. Major topics are the origin and evolution of life, mountain building, and continental drift.

16.203 Physical Geology Laboratory 1 Q.H.*
(Prereq. 16.201; may be taken concurrently)
Optional laboratory for 16.201; Physical Geology. Laboratory exercises pertain to mineral and rock identification and topographic and geologic map interpretation. Required for geology majors.

16.204 Historical Geology Laboratory 1 Q.H.*
(Prereq. 16.202; may be taken concurrently)
Course offers a study of fossil representatives of major invertebrate phyla; application of fossils to studies of rock sequences; interpretation of geologic history from geologic maps.

16.206 Rock Identification Laboratory 1 Q.H.
(Prereq. 16.215; may be taken concurrently)
The course provides self-paced laboratory exercises in the identification and classification of common rocks.

16.214 Geochemistry 4 Q.H.
(Prereq. One year of chemistry)

An evaluation of chemical processes important in the various geologic environments and their effects on the development of the lithosphere.

16.215 Descriptive Mineralogy 5 Q.H.*
(Prereq. Two quarters of chemistry)

The course provides a study of mineralogy, including crystallography and physical, chemical, and descriptive mineralogy of the common rock-forming minerals. (Formerly 16.211)

16.217 Optical Crystallography 5 Q.H.*
(Prereq. 16.215)

The theory and the practical methods of optical crystallography are studied, including the basic

techniques for determining the optical constants of crystals using the polarizing microscope and immersion media. (Formerly 16.212)

16.218 Petrography 5 Q.H.*
(Prereq. 16.217)

Topics include description and identification of rocks and rock-forming minerals using thin-sections and the petrographic microscope; discussion of textural and mineralogic relationships. (Formerly 16.213)

16.219 Igneous and Metamorphic Petrology 5 Q.H.*
(Prereq. 16.218)

The course covers the origin and distribution of igneous and metamorphic rocks as interpreted from their chemistry, mineralogy, and field relationships. Laboratory includes field and petrographic analysis of rock suites. (Formerly 16.216)

16.225 Sedimentation and Sedimentary Environments 5 Q.H.*
(Prereq. 16.202)

The course offers a description of the physical processes of sedimentation and their role in the interpretation of modern and ancient sedimentary environments. Laboratory concentrates on the interpretation and description of the physical and textural properties of sediments and sedimentary rocks.

16.226 Sedimentary Petrology 5 Q.H.*
(Prereq. 16.217)

Topics include origin, classification, and petrography of the major groups of sedimentary rocks. Discussion of the environments of deposition of the nonclastic rocks. Laboratory concentrates on thin-section study of sedimentary rocks. (Formerly 16.222)

16.227 Stratigraphy 5 Q.H.*
(Prereq. 16.202)

Course offers study of paleoenvironments and sedimentary-basin analysis based on sedimentary structures, stratigraphic sequences, and fossils. Emphasis is on use of geologic sections, drill-cores, and well-logs. Laboratory interpretation of sedimentary rock suites, maps, and sections. (Formerly 16.221)

16.231 Glacial and Pleistocene Geology 4 Q.H.
(Prereq. 16.202)

The course covers the processes of ice movement and the characteristics and distribution of erosional and depositional structures associated with past and present glaciers; introduction to Pleistocene chronology and correlations.

16.232 Geomorphology 4 Q.H.
(Prereq. 16.201)

The course focuses on the origin and evolution of landscape features by processes operating at or near the earth's surface.

16.233 Coastal Processes**4 Q.H.**

(Prereq. 16.201)

The course examines the effect of coastal marine processes and the resultant coastal responses. Topics include the dynamics of waves and currents and the associated erosion, transportation, and deposition of sediment forming beaches, barrier islands, and cliffed structures.

16.235 Landform Interpretation**4 Q.H.**

The course focuses on the origin and evolution of landscapes which may be interpreted on the basis of the size, shape, orientation, composition, and distribution of topographic features. Particular attention is given to the effects of different climates on landscape evolution. The use of topographic maps, geologic maps, and stereo-aerial photographs is emphasized.

16.237 Marine Geology**4 Q.H.**

(Prereq. 16.201)

The balance between major sedimentary and tectonic forces in ocean basins and margins is compared to resulting ocean form. Topics include origin of continental shelves, shelf sedimentation and transport, deep-sea processes and sediments. Resource development of OCS oil, sand and gravel, and manganese nodules is evaluated.

16.240 Structural Geology**5 Q.H.***

(Prereq. 16.201 and 16.203)

Description and origin of large and small scale rock structures with emphasis on interpretation of the mechanics of deformation. Field and laboratory analyses of structural problems using maps, models, and rock specimens. (Formerly 16.241)

16.242 Geophysics**4 Q.H.**

(Prereq. 11.117)

This course offers a study of basic techniques of reflection and refraction seismology, gravity, aeromagnetic, and heat-flow techniques and the information they provide on the structure, composition, and dynamics of the earth's interior. Emphasis is placed on the application of these techniques to the search for economic minerals in the earth's crust.

16.245 Economic Geology**4 Q.H.**

(Prereq. Dept. approval)

The course focuses on the genesis, associations, and occurrence of the major ore minerals, illustrated by studies of selected ore bodies of various types throughout the world.

16.248 Field Geology**4 Q.H.***

(Prereq. 16.201)

The course focuses on field techniques as a working guide for the approach, pursuit, and solution of geologic problems. Among the techniques considered are geologic map construction, stratigraphic section measurement,

and field rock description. The laboratory consists of field research at a quarry, roadcut, or other geologic exposure.

16.261 Advanced General Geology**4 Q.H.**

(Prereq. 16.201 and 16.202)

The course offers an introduction to new and advanced concepts, theories, and hypotheses in geology. Students participate actively in discussions, research papers, and individual projects. Topics may include continental drift, sea floor spreading, uniformitarianism, peneplanation, evolution, origin of magma, and origin and geologic history of the moon.

16.252 Invertebrate Paleontology**5 Q.H.***

(Prereq. 16.202)

Survey of the major invertebrate phyla preserved in the fossil record. Micro- and macro-evolutionary principles are discussed with consideration of adaptive and functional morphology and the role of paleoenvironments. Laboratory involves description and classification of fossil invertebrates. (Formerly 16.251)

16.271 Geology Seminar**4 Q.H.**

(Prereq. Major in geology or senior status)

The course offers in-depth study, on an individual or small-group basis, of a selected geologic topic. Both oral and written presentations are required.

16.287, 16.288 Undergraduate Research**(each) 4 Q.H.**

The course offers independent research on a selected topic under the direct supervision of a faculty member. Open only to juniors and seniors majoring in geology, with the recommendation of the supervising faculty member and of the department.

16.290, 16.291 Directed Study**(each) 4 Q.H.**

The course offers independent study of a specific topic not normally contained in the regular course offerings, but within the area of competence of a faculty member. Open to all students with the recommendation of a faculty member and departmental approval.

16.292, 16.293 Special Studies**(each) 1 Q.H.**

The course offers an independent study of a specific topic. Open to all students with the recommendation of a faculty member and departmental approval.

16.295, 16.296, 16.297, 16.298 Junior-Senior Honors Program**(each) 4 Q.H.**

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Biology

For specific information about which terms courses are offered, students should inquire at the main office of the Biology Department, 403 Richards Hall. This is especially the case for students wishing to carry a minor in biology, since some courses acceptable only for a minor do not appear in the quarterly Elective Course Selection Booklets. Students should note that courses are presented by category and are not listed in a single numerical sequence.

The following courses are primarily for students with little or no background in college science and mathematics. These courses are not open to biology majors.

18.107 Marine Biology 4 Q.H.

(Not open to biology majors)

The course provides an introduction to marine life with an emphasis on that of New England shores, and includes concepts of life cycles; adaptation of organisms; productivity; disturbance effects due to pollution and or man and how they interrelate.

18.114 Human Anatomy I and Physiology I

(Not open to biology majors) 5 Q.H.*

The course focuses on cellular and tissue structure and function, followed by anatomical terminology. Topics include histology, anatomy, and physiology of bones, muscles, blood, and nervous systems. The laboratory includes a study of human bones, cat dissection, and related histology.

18.115 Human Anatomy II and Physiology II

(Not open to biology majors) 5 Q.H.*

The course covers anatomy and physiology of the respiratory, digestive, urogenital, and circulatory systems; physiology of endocrine system; a brief exploration of the anatomy and physiology of eye and ear. The laboratory includes studies of muscle and nerve physiology, blood physiology and histology, and physiology of respiration.

18.116 The Human Organism 4 Q.H.*

(Not open to biology majors)

The course provides an introduction to the structure and function of the human body, designed for nonscience majors. Emphasis is on the principles of biological and physical science as they relate to life processes in health and disease. Laboratory experiments explore the workings of the students' own biological systems rather than those of other animals.

18.118 Organic Evolution 4 Q.H.

(Not open to biology majors)

The course focuses on the major features of organic evolution, with emphasis on vertebrate evolution, genetics, and physical influences.

18.119 Environment and Man 4 Q.H.

(Not open to biology majors)

The course offers an ecological analysis of man's interaction with other organisms. The

necessary foundation of biological principles is presented.

The following courses are primarily for students majoring in science or health-related professions or other majors (non-biology) with equivalent background in college science and mathematics. These courses are not open to biology majors.

18.106 Ecological Principles 4 Q.H.

(Prereq. Non-biology science majors or engineering majors)

Identical to 18.134, but without lab. Not open to biology majors.

18.120 Basic Microbiology 4 Q.H.

(Prereq. 18.141, or permission of instructor; not open to biology majors)

Microbial life, emphasizing morphological characteristics, physiological activities, and disease production. Laboratory.

18.121 Introductory Microbiology 3 Q.H.

(Not open to biology majors)

Similar to 18.120, but without laboratory.

18.141 Basic Animal Biology I 4 Q.H.*

(Not open to biology majors)

The course covers principles of biology; universal properties and processes of living organisms as exemplified by the cell and its activities; inheritance evolution, and environmental relationships. Laboratory.

18.142 Basic Animal Biology II 4 Q.H.*

(Prereq. 18.141; not open to biology majors)

The course offers systematic, comparative study of the structure and functions of animals. Diversity of animals is considered from the standpoint of evolutionary adaptation. Laboratory.

18.143 Human Physiology I 4 Q.H.*

(Prereq. 18.131 and 18.132; not open to biology majors)

The course offers study of the physiology of excitable cells and tissues: nerve and muscle, synapses, muscular contraction, neuromuscular reflexes, autonomic nervous system, endocrinology; sensory physiology; and higher nervous function.

18.144 Human Physiology II 4 Q.H.*

(Prereq. 18.143; not open to biology majors)

The course offers study of respiration and circulation: fluids, the heart, cardiovascular regulatory mechanisms and metabolism,

gastrointestinal function, renal function. Laboratory.

18.122 Plants in Human Affairs 4 Q.H.
(Not open to biology majors, except for general credit)

The course examines the economic, cultural, and political history of plant culture and usage. Emphasis is placed on historical perspectives and future roles for plants in human society. Among the topics discussed are plant energy sources, development of present day crops, food plants of the developing nations, conservation, medical botany, poisonous plants, and the world food shortage.

18.123 Biology of Human Reproduction 4 Q.H.
(Not open to biology majors)

The course covers structure and function of male and female reproductive systems; factors affecting sexual development, fertility, and reproductive behavior in the human species; physiology of coitus, fertilization, pregnancy, birth, and lactation; methods of controlling fertility.

18.148 Human Anatomy 4 Q.H.*
(Not open to biology majors)

The course focuses on the structure and development of the human body. Laboratory.

18.221 General Microbiology 3 Q.H.
(Prereq. Permission of instructor or 12.145, 18.135, and 18.136; required courses may be taken concurrently)

Same as 18.220, but without laboratory. Not applicable for the Biology major or graduate credit.

Courses primarily for biology majors or for other students with equivalent background in college science and mathematics. Freshmen intending to major in biology should take the sequence 18.111 to 18.113.

18.111 Principles of Biology I 5 Q.H.*

An introduction to the basic principles of biology, the course endeavors to provide an information base for the remainder of the biology core. Topics include scientific method; growth; development; elementary genetics; nutrition; photosynthesis; and respiration. Special emphasis is placed on the role of plants in the biological world. Laboratory.

18.112 Principles of Biology II 5 Q.H.*
(Prereq. 18.111)

Topics include cellular metabolism, molecular mechanisms of microbial life, structure and general physiology of animal cells, and evolution of adaptive diversity among invertebrate animals. Laboratory.

18.113 Principles of Biology III 5 Q.H.*
(Prereq. 18.111 and 18.112)

The course covers discussion of the structure and function of vertebrate animals, including the human species; introduction to the various systems of the body, illustrated with laboratory experiments and animal dissection.

18.131 General Biology 4 Q.H.*

The course focuses on universal properties and processes of living organisms. Topics include cellular composition and cellular control, the evolutionary process, environmental relationships. Laboratory. (Not normally for freshman biology majors)

18.132 Animal Biology 4 Q.H.*
(Prereq. 18.131)

The course offers a systematic comparative study of the structure and functions of animals. Diversity of animals is considered from the standpoint of evolutionary adaptation. Laboratory. (Not normally for freshman biology majors)

18.133 Plant Biology 4 Q.H.*
(Prereq. 18.131-18.132 or 18.111-18.113)

The course offers an introduction to the structure of plant cells, structure and function of roots, stems, and leaves of flowering plants; survey of the major groups in the plant kingdom, including their morphology, reproductive biology, and economic importance. Laboratory.

18.134 Environmental and Population Biology 4 Q.H.*
(Prereq. 18.131-18.133 or 18.111-18.113)

The course offers detailed consideration of the physico-chemical factors influencing and influenced by organisms. The course covers interactions among individual organisms and among species; change of species by genetic natural selection; development of communities and function of ecosystems. Laboratory.

18.135 Genetics and Development Biology 4 Q.H.*
(Prereq. 18.131-18.133 and 12.144)

Course focuses on elaboration of the classic laws of heredity; cytogenetics; molecular basis of heredity; and selected examples of the development of form and function. Laboratory.

18.136 Cell Physiology and Biochemistry 4 Q.H.*
(Prereq. 18.131-18.135, 12.145, and 12.171)

Topics include basic chemical and physical enzyme kinetics; processes of cells related to their fine structure; oxidative and intermediary metabolism; photosynthesis, membrane phenomena; chemical and physical processes of prokaryotic and eukaryotic cells. Laboratory.

Note: Biochemistry courses which are sequels to 18.136 are listed under Interdisciplinary course numbers (93.--).

18.158 Vertebrate Physiology I 4 Q.H.*

(Prereq. 18.131-18.133 and 18.136)

The course covers properties of living protoplasm; the general organization and function of cells; translocation of materials and the organization of animals; the physiology of the skeletal systems of man and animals; the physiology of amoeboid, ciliary and contractile movement with emphasis on muscle metabolism; the structure and function of neurons, reflex arcs, the autonomic nervous system and the sensory receptors. Laboratory.

18.159 Vertebrate Physiology II 4 Q.H.*
(Prereq. 18.158)

Topics include fluid media of animals, emphasizing water and electrolyte balance and kidney function in man; the physiology of blood, including its formation, functions, clotting antigens and tests for identifying blood; the physiology of the heart, nervous control of the vascular system, breathing and gas transport, heat regulation, nutrition, digestion and assimilation; the endocrine secretions, and the physiologic aspects of reproduction.

18.206 Evolution 4 Q.H.**
(Prereq. 18.131-18.135)

This is a basic evolutionary course for biology majors and graduate students offering a survey of evolutionary history, evidence, mechanisms, and theories. Topics of current interest in evolution are emphasized.

18.207 Vertebrate Zoology 4 Q.H.*
(Prereq. 18.131 and 18.134)

Lectures emphasize the systematics, natural history, zoogeography, and behavior of all classes of vertebrates. The laboratory consists of identification of preserved specimens and mandatory field and museum trips.

18.208 Comparative Vertebrate Anatomy 5 Q.H.*
(Prereq. 18.131 and 18.132)

The course focuses on morphology and phylogeny of the vertebrates; laboratory studies on taxonomy of the group and specific morphology of the dogfish shark, the mud puppy, the alligator, and the cat.

18.209 Embryology 5 Q.H.*
(Prereq. 18.131, 18.132 and 18.135)

Topics include gametogenesis, fertilization, cleavage, gastrulation, induction, organogenesis, and metamorphosis in vertebrates. Emphasis is on frog, chick, and pig in the laboratory.

18.210 Marine Invertebrate Zoology 5 Q.H.*
(Prereq. 18.131-18.133)

Topics include functional morphology, systematics, ecology and phylogenetic relationships of the major invertebrate phyla. Emphasis in laboratory is on utilization of living marine forms, with dissection of representative organisms.

18.211 Parasitology 4 Q.H.*
(Prereq. 18.131 and 18.136)

The course focuses on symbiotic relationships of protozoans, mesozoans, flatworms, nematodes, acanthocephalans, and arthropods. Laboratory.

18.212 Vertebrate Paleontology 4 Q.H.*
(Prereq. 18.131, 18.132, 18.134, 18.135 or permission of instructor)

The course examines evolution of the vertebrates, including man, as revealed through the fossil record. Laboratory, museum, and field studies.

18.216 Herpetology 4 Q.H.**
(Prereq. 18.132 and 18.135)

Lectures emphasize the natural history, behavior, systematics, and zoogeography of recent amphibians and reptiles. The laboratory consists of identification and preparation of preserved specimens, particularly local amphibians and reptiles. Mandatory field trips.

18.217 Mammalogy 5 Q.H.*
(Prereq. 18.131-18.134)

The course offers study of phylogeny, anatomy, physiology, and natural history of mammals. Field collection, laboratory preparation, and study of specimens are included. Laboratory.

18.219 The Microbial World 4 Q.H.*
(Prereq. 18.134 and 12.144)

The course offers study of the position, structure, and function of microorganisms in the natural world, and their utilization by man from the perspective of their major physiological properties. Laboratory.

18.220 General Microbiology 5 Q.H.*
(Prereq. Permission of instructor or 12.145, 18.135, or 18.136; required courses may be taken concurrently)

The course provides morphological, ecological, and biochemical consideration of representative groups of bacteria; introduction to virology and microbial genetics; host-parasite relationships including basic immunological considerations; prokaryotes of medical significance; physical and chemical controls of microbial growth. Laboratory.

18.222 Medical Virology 4 Q.H.*
(Prereq. 18.220)

The course examines fundamental characteristics of animal viruses with emphasis on pathogenesis, clinical pathology and epidemiology of the common viral diseases, including the tumor viruses and the slow viral diseases. Laboratory sessions focus on methods of working with animals, eggs, and cell cultures in isolating, cultivating, and identifying viruses.

18.227 Animal Histology 4 Q.H.*
(Prereq. 18.132)

The course offers microscopic study of fundamental types of animal tissues. Laboratory.

18.228 Histological Technique 3 Q.H.*
(Prereq. 18.131 and 18.136)

The course provides instruction in general methods of tissue preparation for purposes of microscopic study; preparation of solutions and stains; the microtome and its operation, together with specific directions for fixation, clearing, hardening, embedding, section-cutting, and staining tissues. Laboratory.

18.230 Marine Botany 4 Q.H.*

Subjects covered include taxonomy of the major groups of marine plants, primarily algae; their ecological and reproductive strategies and their economic importance; and their roles in diverse marine communities. Mandatory field trips in addition to laboratory studies.

18.231 Lower Plants 4 Q.H.*
(Prereq. 18.133)

The course offers study of nonvascular plants (algae, fungi, lichens, mosses, and liverworts), including their morphology, ultrastructure, ecology, life cycles, reproductive strategies, and economic uses. Laboratory.

18.232 Higher Plants 4 Q.H.*
(Prereq. 18.133)

The course offers study of vascular plants (club mosses, ferns, gymnosperms and angiosperms). Origin, ecology, development, structure, paleobotanical evidence, reproductive strategies, and economic uses. Field trips included. Laboratory.

18.234 Plant Anatomy 4 Q.H.*
(Prereq. 18.133)

The course focuses on comparative developmental anatomy of seed plants. Laboratory.

18.235 Economic Botany 4 Q.H.*
(Prereq. 18.133, or 18.111-18.113)

The course offers an in-depth study of the association of plants and men. Subjects include food, beverage, drug, fiber, and medicinal products and crops, both historically and in present day usage. Laboratory includes making of several plant products (paper, dried fruit, beer, etc.) as well as tours of a brewery, wholesale grocers, ethnic markets, sugar factory, and other places as time permits.

18.236 Horticulture 4 Q.H.*
(Prereq. 18.133 or equiv.)

The course examines basic cultivation methods for ornamental and food plants. Offered at the University Greenhouse. Laboratory.

18.238 Local Flora 4 Q.H.*
(Prereq. 18.133)

The course provides a study of local vascular flora (ferns, gymnosperms and angiosperms), with emphasis on recognition and appreciation of plant family characteristics. Preparation of

herbarium specimens is presented. Field trip attendance is required. Laboratory.

18.240 Microbial Physiology 4 Q.H.*
(Prereq. 18.220 or equiv.)

The course focuses on structure and function of the bacterial cell, with emphasis on its general properties as well as on the physical and chemical factors which influence it. Laboratory.

18.242 Medical Microbiology 4 Q.H.*
(Prereq. 18.220 or equiv.)

Topics include host parasite interactions: virulence, toxins, natural flora, immunological responses, characteristics of the common bacterial, rickettsial, and protozoal infections in man; epidemiology, pathology, vaccines, and chemotherapy.

18.245 Serology-Immunology 3 Q.H.
(Prereq. 18.220 or equiv.)

The course covers basic consideration of the physical and chemical attributes of antigens and antibodies. Antigens of biological significance as well as in vivo antigen-antibody interactions are discussed.

18.246 Serology-Immunology Laboratory 2 Q.H.*
(Prereq. 18.245 taken concurrently)

The course provides laboratory exercises dealing with immunization, quantitative antigen-antibody reactions, electrophoretic studies (agar, acrylamide gel, and cellulose acetate), immuno-fluorescence.

18.248 Marine and Fresh Water Microbiology I 2 Q.H.*
(Prereq. 18.220)

The course examines methodological approaches to the study of the aquatic environment. Shipboard sampling and relevant field trips augment laboratory studies.

18.249 Marine and Fresh Water Microbiology II 2 Q.H.
(Prereq. 18.220)

The course focuses on characterization and differentiation of aquatic micro-organisms. Topics include microbial associations in marine, estuarine, and fresh water habitats. Morphology, physiology and ecology are stressed.

18.251 Comparative Animal Physiology 4 Q.H.*
(Prereq. 18.132 and 18.136 or equivalents.)

Their control, and their adaptiveness to various environments, with consideration of phylogeny of these adaptations and of their underlying cellular mechanisms. Emphasis is on invertebrates and lower vertebrates, with comparisons to mammals. Laboratory.

18.255 Comparative Neurobiology 4 Q.H.*
(Prereq. 18.136)

The course focuses on structure and function in simple invertebrate nervous systems. Topics include parallel conductance theory at endogenous and synaptic potentials, nerve networks, simple sensory and motor systems.

18.260 Advanced Cell Biology 4 Q.H.*

(Prereq. 18.136 and physics)

The course examines selected topics in cellular structure and function of eukaryotes, e.g., their electrical and mechanical characteristics and the underlying physical and biochemical processes. Topics will vary depending upon the instructor. Laboratory.

18.285 Introduction to Plant Physiology 4 Q.H.*

(Prereq. 18.133 and 18.136 or permission of Instructor)

The course focuses on the physiology and biochemistry of plants as a whole and at the cellular and organ level. Considerations of mineral nutrition, photosynthesis, hormones, growth and development are included. Attendance at a weekly four hour lab, as well as preparation of a paper based on the research literature, are required.

18.280 Senior Seminar 1 Q.H.

(Prereq. Completion of biology core, 18.131-18.136)

The course examines recent developments in various topics of zoology, microbiology, physiology, botany, ecology, genetics, and cell biology. Student presentation and analysis is emphasized. Limited to qualified juniors and seniors in the B.A. program and required of seniors in the B.S. program.

18.290, 18.291 Directed Study (each) 2 Q.H.
(Prereq. Completion of biology core, 18.131-18.136)

The course offers independent work on a chosen topic under the direction of members of the Department. Limited to qualified juniors and seniors with approval of the Department and special arrangements with the supervising faculty member. The two quarters of this course together are counted as one elective course in the Biology Department.

18.295, 18.296, 18.297, 18.298 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Psychology

For specific scheduling information, students should request a current course listing at the main office of the Psychology Department, 234 NI.

Students should note that courses are presented by category and are *not* listed in numerical sequence.

Courses

19.105 Foundations of Psychology I 4 Q.H.

Topics include the observation of behavior, classical and operant conditioning, clinical applications of learning theory, sensation and perception, the physiological substrata of behavior. The basic principles of psychological analysis are taught by a personalized interactive method, using videotapes, progress quizzes, one-to-one study tutorials. Students can study at their own pace, within flexible calendar limits, proceeding to a new unit when the prior unit has been mastered.

19.106 Foundations of Psychology II 4 Q.H.

(Prereq. 19.105)

The course offers a continuation of 19.105, featuring a sequence of graded reading assignments and tutorial sessions, with frequent self-evaluation of study progress. Topics include analysis of behavior as applied to education, personality and behavior disorders, brain damage and language, sensory processes, ethology and aggression, and social psychology.

19.120 Statistics in Behavioral Science I 4 Q.H.

The course offers an introduction to descriptive statistics (scales of measurement, frequency distribution and graphs, measures of central tendency, dispersion and correlation, standard

scores and the unit normal curve), and probability theory (permutations, combinations and the binomial theorem). This "self-paced" course features a tutorial system that encourages the most advanced students to join in the teaching process by working with the rest of the class as "peer-tutors." Sequence of carefully constructed work-problems. Students proceed to a new unit when the prior unit has been mastered.

19.121 Statistics in Behavioral Science II 4 Q.H.

(Prereq. 19.120)

The course offers a general presentation of hypothesis testing, including parametric and nonparametric tests, with emphasis on formulating hypotheses and choosing appropriate scales of measurement, tests, and confidence levels. (Continuation of 19.120 with the same format.)

19.130 Social Psychology 4 Q.H.

(Prereq. 19.106 or permission)

The course provides an introductory survey of social psychology. Topics include aggression, attribution, attitude formation, change, measurement, conformity, impression formation, group processes (social facilitation, deindividuation, etc.).

19.135 Personality I**4 Q.H.**

(Prereq. 19.106)

The course offers a systematic study of the normal personality and its development. Topics include behavioral, dynamic, and constitutional determinants, assessment of personality, research, and a survey of the major theories of personality.

19.136 Personality II**4 Q.H.**

(Prereq. 19.135)

Continuation of 19.135.

19.141 Human Behavioral Development I**4 Q.H.**

(Prereq. 19.106)

Various approaches to the study of human development (from the baby diary to the experiment) are examined. Includes study of biological bases of behavioral development, sensory and motor function, learning, socialization, speech and language, imitation, dependency, aggression, and abnormalities of development. The general heredity/environment question is studied and gives rise to assessment of twin studies and selective breeding experiments. A personalized course in which students progress at their own rate, with frequent evaluations of progress, immediate feedback, and tutorial assistance.

19.142 Human Behavioral Development II**4 Q.H.**

(Prereq. 19.141)

Continuation of 19.141 with emphasis on adolescence and adulthood.

19.153 Child Language**4 Q.H.**

(Prereq. 19.155)

The course provides a study of the manner in which language develops in children.

19.149 Sensation**4 Q.H./**

(Prereq. 19.106)

The course provides an introduction to the study of our senses, with emphasis on hearing, touch, taste, and smell. Students have the opportunity to learn how we measure our sensory abilities. Findings are closely related to the functioning of sensory organs—ears, skin, mouth and nose—and of the sensory nervous system. The course is built around one lecture-demonstration a week plus a textbook and study guide. Students are expected to pass mastery quizzes and work closely with peer-tutors in a modified personalized system of instruction.

19.150 Perception**4 Q.H.**

(Prereq. 19.106)

The course offers a study of our awareness of the world around us exemplified primarily by visual perception. Topics are explored in group discussions, and include light, visual sensory mechanisms, color vision, illusions, consciousness, and dreams.

19.151 Bilingualism**4 Q.H.**

Studies from all the language sciences are drawn upon to present bilingualism and its

implications for the individual, the society, and the educational process. A linguistic presentation of diverse types of interference (phonetic, grammatical, and lexical). A psycholinguistic description of the bilingual individual (compound vs. coordinate bilinguals, case switching, predominance of one language). A sociolinguistic approach to bilingualism (majority vs. minority languages, language loyalty, group identification and mono- and biculturalism). Illustrations include the English-French, English-Spanish and English-Sign bilingual populations in the United States.

19.152 Introduction to Phonetics**4 Q.H.**

The course offers an introduction to the nature of the speech signal from an articulatory, perceptual, and acoustic point of view. Topics include sound measurement, sound classes, and a survey and comparison of speech sounds used in languages in the world. Stress, tone, and intonation. Phonetic classification and transcription of speech as practical tools for students of languages, linguistics and speech and hearing science.

19.155 Language and Cognition**4 Q.H.**

(Prereq. 19.106)

This course provides a basic introduction to the human cognition (cognitive psychology) and the psychology of language (psycholinguistics). On the subject of cognition, the course emphasizes the mental processes involved in the acquisition, organization, and use of knowledge, including pattern recognition and memory. On the subject of psycholinguistics, it focuses on the nature and structure of language, various theories of man's production and perception of language, and related experimental findings.

19.156 Thought Processes in Children**4 Q.H.**

(Prereq. 19.106)

The course offers an introduction to the processes of thinking, from infancy through adulthood. Specific topics include sensory-perceptual development, problem solving, concept attainment, and the development of social and cultural perspectives.

19.157 Cognition**4 Q.H.**

(Prereq. 19.155)

Continuation of 19.155, focusing on cognition. This course emphasizes the analysis of perception, memory, and learning within an information-processing framework. Also considered are selected topics in cognitive development.

19.164 Learning and Motivation I**4 Q.H.**

(Prereq. 19.106)

Application of basic behavioral principles to behavioral development, behavior modification, language development, and programmed learning, and their relations to theoretical considerations in the learning process.

19.166 Programmed Learning 4 Q.H.
(Prereq. 19.164)

Development of programmed instruction has been one of the products of basic behavioral research. After students master relevant basic research literature, they are expected to review and evaluate existing instructional programs in light of the underlying behavioral principles. Programs are selected from those useful in the normal and special education classrooms, i.e., complex academic subject matter and individual problem areas.

19.167 Applied Programming Techniques 4 Q.H.
(Prereq. 19.166 and permission of instructor)

Students design, test, and evaluate their own instructional programs for teaching specific subject matter, for remedial application to behavior problems, or for testing basic instructional theory.

19.168 Behavior Therapies 4 Q.H.
(Prereq. 19.106)

The course offers a study of successful projects which have provided effective remediation and rehabilitation in institutions for the mentally ill, the mentally retarded, and the developing human (schools).

19.169 Learning and Motivation II 4 Q.H.
(Prereq. 19.164)

Continuation of 19.164 with emphasis on biological constraints on learning, i.e. punishment, anxiety, aggression, addiction, and other topics of individual interest.

19.170 Language Abnormalities 4 Q.H.
(Prereq. 19.155)

Topics include psycholinguistic methods and findings in the study of aphasia, stuttering, dyslexia, language of the retarded, and other language pathologies.

19.172 Applied Behavior Modification 4 Q.H.
(Prereq. 19.171 and permission of instructor)

Continuation of 19.171.

19.178 Physiological Bases of Psychology I 4 Q.H.
(Prereq. 19.106)

Topics include how nerves function and work together in the nervous system; how our sense organs provide the brain with information about the outside world; how the brain acts to produce externally observable behavior; and how such psychological concepts as perception, learning, motivation, arousal, and emotion may relate to nervous system activity.

19.179 Physiological Bases of Psychology II 4 Q.H.
(Prereq. 19.178)

Continuation of 19.178.

19.180 Neuropsychology 4 Q.H.
(Prereq. 19.179)

For students who desire intensive study, discussion, and practice in laboratory studies of physiological variables. Topics include evolution of the nervous system, sensory and motor

mechanisms, motivation and emotion, sleep, attention and perception, learning, and memory.

19.183 Biological Bases of Motivation 4 Q.H.
(Prereq. 19.178)

The course focuses on the mechanisms of eating and drinking behavior, attention, sleep, arousal, and emotional behavior.

19.186 Comparative Psychology and Ethology 4 Q.H.
(Prereq. 19.106 and 19.178 or equiv. course in biology)

This introductory-level course in animal behavior surveys a wide range of species (reptiles, birds, fish, mammals—including humans) to find similarities and differences in the behavioral processes and physiological mechanisms by which individual organisms and species adapt to their environments. The first section of the course focuses on adaptive specializations exhibited by animals in learning about their environments during early development and as adults. The second section examines problems of social organizations at the individual level: how animals communicate with each other and transmit "cultural" skills; mechanisms underlying cohesion and dispersal (e.g., reproduction and aggression); and the adaptive advantages of being social or "asocial." The final section provides the student with an unusual opportunity to apply concepts and experimental methods they have learned by actually doing a short field study of animal behavior at The Boston Zoological Park.

19.189 Drugs, Brain, and Behavior 4 Q.H.
(Prereq. 19.179)

Examines, from a psychobiological perspective, different experimental approaches to the problems involved in uncovering the relationships between changes in brain activity and changes in behavior produced by drugs. Material involves not only a general survey of the data collected with regard to drug/brain-behavior relationships, but also current theorizing on the role of early experience, environmental factors, biological rhythms, and other factors in the determination of drug-induced behavioral changes.

19.192 Sensory and Perceptual Abnormalities 4 Q.H.
(Prereq. 19.150)

The course focuses on some of the peripheral factors which influence perception of the external world. Discussions consider the manner in which sensory deficits can influence behavior and some of the means of dealing with sensory and perceptual abnormalities. Application of programmed instruction to the development of sensory tests and remedial procedures for nonverbal people, blind or deaf retarded people, young children who have not yet learned to speak, and aphasic patients; the detection of hysterical sensory loss and malingering.

19.193 Neuroanatomy I**4 Q.H.**

(Prereq. 19.106)

Aimed primarily at the study of the human nervous system, this course focuses on study of the cellular structure of the nervous system, including a cell's organelles, followed by a short study of the embryological development of the nervous system. Systematic study of the nervous system beginning in the spinal cord and ending in the cerebral cortex with primary emphasis on fiber connections. A continuous attempt to correlate structure with behavioral activity.

19.194 Neuroanatomy II**4 Q.H.**

(Prereq. 19.193)

Continuation of Neuroanatomy I. Students are expected to participate in individual reports on selected topics concerning the nervous system.

19.202 Abnormal Psychology I**4 Q.H.**

(Prereq. 19.135 or 19.141)

The course offers a study of the abnormal personality; criteria of psychopathology; anxiety and defense. Symptomatology, etiology, and dynamics of neuroses (hysteria, phobia, obsessions, compulsions) and of psychosomatic disorders. Detailed examination of case histories.

19.203 Abnormal Psychology II**4 Q.H.**

(Prereq. 19.202)

The course offers a survey of psychological and somatic therapies. Symptomatology, etiology, dynamics, and therapy of psychoses (schizophrenia, paranoia, mania, depression). Sociopathic and organic disorders.

Directed Study—Honors Courses**19.290, 19.291, 19.292, 19.293, 19.294****Directed Study (each) 4 Q.H.**

(Prereq. Permission of Instructor)

This course offers independent work under the direction of the Psychology Department, usually in a research project in one of the Department laboratories. Faculty members normally require completion of advanced laboratory courses in the area of research interest, but this is a matter of individual discussion. Students Interested in Directed Study should consult a departmental adviser.

19.295, 19.296, 19.297, 19.298, 19.299 Junior-**Seniors Honors Program (each) 4 Q.H.**

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Laboratories**19.133 Laboratory In Social Psychology 4 Q.H.***

(Prereq. 19.121 and 19.130)

The course provides an introduction to the

methods of social-psychological research. The purpose of the course is to assist students in developing the ability to read published social research with a critical eye, to pose questions in a testable manner, to apply experimental methods to social research, and to express themselves in APA journal style.

19.138 Personality Laboratory**4 Q.H.***

(Prereq. 19.121 and 19.135)

The course provides an introduction to the methods and areas of personality research. Includes a discussion of problems of measurement, control, and interpretation. Representative published experiments will be examined critically. Students are expected to design, collect data for, assess, and write up several experiments, including one original research project.

19.158 Cognition Laboratory**4 Q.H.***

(Prereq. 19.121 and 19.157)

Experiments related to topics in 19.155 and 19.157.

19.160 Experimental Design in Psychology

(Prereq. 19.106 and 19.121)

4 Q.H.*

The course focuses on the experimental method in the design, execution, analysis and reporting of psychological investigations of humans and animals.

19.162 Sensation and Perception Laboratory

(Prereq. 19.121 and 19.149 or 19.150)

4 Q.H.*

Experiments involving precise measurements of both physical and psychophysical phenomena, including auditory function, color vision and after-effects, muscular sensation, tactile sensitivity, and adaptation to perceptual distortions.

19.165 Learning and Motivation Laboratory

(Prereq. 19.121 and 19.164)

4 Q.H.*

Through direct experience, students have the opportunity to gain proficiency in laboratory analysis of behavior and in evaluating common generalizations about human behavior. Students are expected to design and perform experiments in animal and human learning, memory, decision processes, concept formation, and other topics of individual interest.

19.171 Behavior Modification Laboratory 4 Q.H.*

(Prereq. 19.165 and permission of Instructor)

Students have the opportunity to participate in education and training of severely and profoundly retarded residents at the Walter E. Fernald State School. Learning theory principles are applied to teaching new skills and to treating inappropriate behavior. Students have the opportunity to write individual and group training programs, implement them in a classroom setting, and learn methods for evaluating program success.

19.181 Laboratory in Physiological Psychology 4 Q.H.*

Laboratory experiments based on 19.180 discussion topics.

19.188 Sensory Physiology Laboratory 4 Q.H.*
(Prereq. 19.178)

Experiments are performed to illustrate the physiological techniques in sensory psychology, including electrical recordings of some activities that accompany visual, auditory, and cutaneous activity.

19.195 Laboratory in Psycholinguistics 4 Q.H.*
(Prereq. 19.120 and 19.155)

The course provides students the opportunity to acquire first-hand experience in conducting research on problems in the psychology of language. Students are involved in all aspects of each experiment, including collecting and analyzing data and preparing reports. Classroom discussion focuses both on the particular experiments conducted and on the implications of the experimental findings for broader issues in the psychology of language.

Seminars**19.187 Sensory Physiology Seminar 4 Q.H.**
(Prereq. 19.178)

The course concentrates on the psychophysiology of various sensory systems, vision and hearing in particular. Discussions are concerned with the problem of accounting for sensory phenomena in terms of physiological concepts.

19.270 Seminar in Behavior Theory 4 Q.H.

Topics vary from term to term. For specific information, call ext. 3793.

19.271 Seminar in Cognition 4 Q.H.

Topics vary from term to term. For specific information, call ext. 3793.

19.272 Seminar in Psycholinguistics 4 Q.H.
(Prereq. 19.155)

The seminar focuses on the role of phonology, syntax, and semantics in the perception and production of language, with discussions based on a number of recent papers in psycholinguistics. In the first part of the course, appropriate background material will be presented by the instructor. Next, each student will be responsible for presenting at least one paper on a topic of his or her choice. Subsequent to these presentations will be a general discussion of the papers' implications for current models of the production and perception of language.

19.273 Seminar in Clinical Psychology and Personality 4 Q.H.
(Prereq. 19.135 or permission)

The course offers seminar presentations of topics relevant to understanding the normal and

disturbed personality. Possible topics: specialized assessment procedures, cognitive styles in personality, temperament, hypnosis, anxiety, aggression, specialized clinical syndromes, and the development of conscience.

19.274 Seminar in Sensory and Physiological Psychology 4 Q.H.

(Prereq. Permission of instructor)

19.275 Seminar in Social Psychology 4 Q.H.
(Prereq. 19.130 and 21.107 or permission)

Students are expected to examine and present in class their findings on a particular topic in social psychology. Topics may include attribution, aggression, conformity, attitude-behavior relationship, etc.

19.276 Seminar in Behavior Modification 4 Q.H.
(Prereq. 19.165)

Topics in behavior modification are discussed in a seminar format.

Teaching Practica

Students who have mastered one of the Department's self-paced courses may request permission to enroll in the correlated Teaching Practicum, with elective credit applicable to the major within limits noted in the major requirements handbook. Students have the opportunity to learn how to design instructional materials, give tutorials, and solve study problems in the subject matter of the self-paced course. The practica include a series of seminars and teachings on instructional techniques and problems.

19.100 Apprentice Teaching Practicum I 1 Q.H.

Students who complete a personalized instruction psychology course (e.g., 19.105, 106, 141, 142, 120, 121, 149, 164) early in the quarter may be invited to assist in tutoring other students in the same course. Training and supervision guide this brief experience, and students may wish to move from this apprenticeship to more advanced teaching practica.

19.103 Apprentice Teaching Practicum II 1 Q.H.
(Prereq. 19.100)

A continuation of 19.100.

19.250 Teaching Practicum in Foundations of Psychology I 4 Q.H.

(Prereq. 19.105 and permission of instructor)

This course is designed to assist students in learning practical teaching skills as well as theoretical principles associated with personalized instruction. Teaching responsibilities include interactions with students in 19.105 for four hours each week. In addition, a special Saturday conference and weekly staff seminars will help acquaint the undergraduate with relevant literature and provide opportunity for discussion.

19.251 Advanced Teaching Practicum In Foundations of Psychology I 4 Q.H.

(Prereq. 19.250 and permission of instructor)

Students who have mastered elementary teaching skills in 19.250 have an opportunity to design and evaluate programming techniques which can be applied to college-level instruction. In addition to carrying limited tutorial responsibilities, each 19.251 student is expected to evaluate and assist the less sophisticated peer-tutor. Students also are required to direct seminar discussions of individually designed teaching programs based on representative samples of the programming literature.

19.252 Teaching Practicum In Foundations of Psychology II 4 Q.H.

(Prereq. 19.106)

Basic principles of PSI are covered in a peer-tutor workshop during the first week of the quarter. Undergraduates are expected to apply these principles for the remainder of the quarter during personalized tutorial sessions with 19.106 students. In addition, students should demonstrate mastery of course material by retaking unit quizzes and the final exam. They are encouraged to offer suggestions for modifying course material and procedures during weekly meetings with the course instructor. Tutors are required to submit two five-minute, tape-recorded segments of actual tutorials for evaluation. They are required to write an evaluative essay on the PSI method of instruction.

19.253 Advanced Teaching Practicum In Foundations of Psychology II 4 Q.H.

(Prereq. 19.252 and permission of instructor)

In addition to tutoring, students are expected to assist new tutors, help other undergraduates who have special problems, and engage in study, research, and evaluation of instructional technology.

19.254 Teaching Practicum In Statistics in Behavioral Science I 4 Q.H.

(Prereq. 19.120 and permission of instructor)

Using the PSI approach, students have the opportunity to learn the principles of teaching introductory statistics and to apply them by conducting a series of personalized tutoring sessions with others enrolled in 19.120.

19.255 Advanced Teaching Practicum In Statistics in Behavioral Science I 4 Q.H.

(Prereq. 19.254 and permission of instructor)

Students are required to conduct a series of tutoring sessions in introductory statistics, assist new tutors, and deal with other undergraduates who have special problems. In addition, they may learn to design PSI material related to descriptive statistics, simple probability, correlation, and regression.

19.256 Teaching Practicum In Statistics in Behavioral Science II 4 Q.H.

(Prereq. 19.121 and permission of instructor)

The course is structured to assist students in learning the principles of the PSI system as applied to the teaching of inferential statistics. Students are expected to apply these principles concurrently by conducting a series of tutoring sessions with others enrolled in 19.121.

19.257 Advanced Teaching Practicum In Statistics in Behavioral Science II 4 Q.H.

(Prereq. 19.256 and permission of instructor)

Students are required to conduct a series of tutoring sessions in inferential statistics, deal with others who have special problems, and assist new tutors. In addition, they are required to redesign one of the course units related to parametric or nonparametric statistical tests.

19.258 Teaching Practicum In Human Behavioral Development I 4 Q.H.

(Prereq. 19.256 and permission of instructor)

Students are expected to study, discuss, and apply the principles underlying the PSI method, conducting tutorials throughout the quarter. At weekly seminars, the course content and its relation to students' performances are discussed, and changes in course content are suggested and evaluated.

19.259 Advanced Teaching Practicum In Human Behavioral Development I 4 Q.H.

(Prereq. 19.258 and permission of instructor)

In addition to carrying limited tutorial responsibilities, each student is required to evaluate and assist new tutors, and is expected to learn to design materials for teaching human behavioral development.

19.260 Teaching Practicum In Sensation I 4 Q.H.

(Prereq. 19.149 and permission of instructor)

Students attend a peer-tutor workshop during the first week of the quarter to review the basic principles of PSI. They are expected to apply these principles for at least two hours per week by tutoring others. The peer-tutor must maintain a log-book describing his/her activities, and is encouraged to offer suggestions for modifying course material and procedures. These suggestions are discussed with the course instructor at weekly peer-tutor meetings. Before the end of the quarter, each peer-tutor is required to submit for evaluation a five-minute tape-recorded segment of an actual tutoring session, as well as a short, evaluative essay summarizing his/her experiences with the PSI system as applied to sensation.

19.261 Advanced Teaching Practicum In Sensation I 4 Q.H.

(Prereq. 19.260 and permission of instructor)

Peer-tutors are expected to assist new design or revise one of the course units. After colleagues by helping in the tutorial workshop and by dealing with students in the course who have special problems (e.g. multiple quiz failures). Advanced tutors are also required to re-

design or revise one of the course units. After review by the course instructor, the new unit and quizzes are tested in the course, and the tutor is expected to write an evaluative report on the unit's effectiveness as a teaching device.

19.262 Teaching Practicum in Perception 4 Q.H.
(Prereq. 19.150 and permission of instructor)
Same as 19.260 but with emphasis on visual perception.

19.263 Advanced Teaching Practicum in Perception 4 Q.H.
(Prereq. 19.260 and permission of instructor)
Same as 19.261 but with emphasis on visual perception.

19.264 Teaching Practicum in Learning Laboratory 4 Q.H.
(Prereq. 19.165 and permission of instructor)
Each student has the opportunity to learn to apply skills of peer-tutoring in the Learning Laboratory (19.165). By administering, evaluating, and discussing oral and written quizzes on laboratory methodology, report writing, and readings, tutors are in a position to provide students with immediate, daily feedback about their progress through each experiment. At weekly meetings with the instructor, each tutor must provide a written progress report for a subset of students, making written recommendations for specific students and for improvement of course content and design.

19.265 Advanced Teaching Practicum in Learning Laboratory 4 Q.H.
(Prereq. 19.264 and permission of instructor)
Students examine the theory of contingency managed instruction (CMI) as it applies to the Learning Laboratory (19.165). They are expected to supervise peer-tutors, critically examine the Learning Laboratory course in the context of the current CMI literature, and recommend changes in both course content and design.

19.266 Teaching Practicum in Learning and Motivation 4 Q.H.
(Prereq. 19.164 and permission of instructor)
Responsibilities include four hours of tutorial work per week on quizzes, readings, study guides and lab visits, and a one-hour tutors' meeting for reviewing course procedures and content. Tutorial work is designed to help students prepare for weekly interviews with the instructor.

19.267 Advanced Teaching Practicum in Learning and Motivation 4 Q.H.
(Prereq. 19.266 and permission of instructor)
Responsibilities are the same as those for 19.266, except that tutors are also expected to participate in revising course content and procedures and to do advanced level readings that will be discussed at weekly tutors' meetings.

Topics in Psychology Series (TIPS)

General Interest, no-prerequisite courses in psychology.

19.148 Sleeping and Dreaming 4 Q.H.
What makes us dream? How important are sleeping and dreaming to physical and mental health? To assist students in understanding the nature of sleeping and dreaming, this course draws on findings and theory in psychology and neurophysiology.

19.230 Psychological Testing: Science and Politics 4 Q.H.
After an analysis of the basic principles of psychological test construction and the characteristics of various tests, the course focuses on the political and sociological problems associated with psychological assessment. Emphasis is on the uses and misuses of tests; social, cultural, and racial issues in intelligence testing and the heredity-environment controversy in I.Q. testing.

19.231 Marriage and the Family 4 Q.H.
Problems typical in some marriages are discussed, including alcoholism, sexual inadequacy and dissatisfaction, separation and divorce, death of a spouse, and child rearing.

19.232 Mind and Brain 4 Q.H.
The science of neuropsychology assumes that for every state of the mind—perceiving, thinking, dreaming, pleasure, pain, etc.—there is a corresponding brain state. This course examines explorations of brain function that have increased our understanding of experience and behavior. Contemporary questions to be discussed include: 1) How is it that a single human brain can store more information than all the libraries of the world? 2) What kind of brain is needed to make language possible? 3) What is the impact of brain damage on states of mind? 4) Is the child's brain more plastic than that of the adult? 5) Do psychological disorders result from a disruption of the natural harmony between the brain's chemistry and its environment? 6) What is the nature-nurture controversy about? 7) How did brains and consciousness evolve? 8) Are there male and female brains?

19.234 The Disordered Mind 4 Q.H.
This course may assist in providing an understanding of disturbed human behavior: how to recognize it, what causes it, and how to treat it. A wide range of disorders is discussed, from minor behavioral disturbances to neuroses, depression, and schizophrenia.

19.235 Animal Communication 4 Q.H.
How do animals communicate and how are we attempting to communicate with them? This course examines and compares the communication systems used by animals such as birds, bees, whales, dolphins, and the primates,

including chimps and humans. From the four perspectives of biology, linguistics, psychology, and sociology, recent attempts to teach other primates some of our languages (sign language, speech, manipulation of tokens or computers) are revealing what it means to be a human in the animal kingdom.

19.236 Man in Isolation 4 Q.H.

Children raised in the wilds, children isolated in society, and adults placed in experimental isolation, are the subjects of this course, designed to reveal what part of human nature actually requires other human beings, what part is programmed biologically, and how these work together to make us human.

19.237 The Young Offender 4 Q.H.

Antisocial behavior has identifiable causes that often lie in the environment. Understanding these causes may make it possible to create new environments to establish constructive social behavior. The same principles are extended to other forms of deviant and deficient behavior.

19.238 Behavior Problems and Their Therapies

4 Q.H.

This course offers a broad introduction to behavior therapies and their use in treating behavioral problems such as fears and phobias, compulsions, overeating, educational difficulties (including inattention and poor study skills), alcoholism, marital and family difficulties, and sexual deviation. Theoretical, practical, legal, and ethical issues will be examined.

19.239 Infant Development 4 Q.H.

In the last few years, new techniques have provided psychologists with a means of asking more precise questions about infants—and some of the answers have been truly remarkable. It is becoming increasingly apparent that the infant possesses highly-developed capacities and that its course of development involves a complex interaction between experience and these innate abilities. This course examines, in historical perspective, these new findings about infants, focusing on what is known about infancy and the various techniques used to study infant behavior. A number of aspects of development will be considered, including social, motor, perceptual, cognitive, and language.

19.244 Sexual Behavior 4 Q.H.,

This course is concerned with the sexual activities of the human male and female from

infancy to adulthood. It considers the importance of sexual factors in the life history of the individual, statistical surveys of sexual behavior, and direct observational measures of sexual responding. Included are the nature of love, responses to pornography, prostitution, bisexuality, male and female homosexuality, rape and child abuse, and sexual therapy.

19.245 Your Memory: How It Works 4 Q.H.

This course provides an analysis of the operation of memory in humans and animals, including factors from learning and physiology. Special attention is given to human verbal and conceptual memory, and classic and modern systems for memory extension and improvement. Practical exercises on methods of remembering are included.

19.246 Psychology and the Law 4 Q.H.

How does psychology enter into the various phases of the judicial process? The class traces the effects of psychological factors through the course of a trial, including such issues as accuracy of eyewitness identification, plea bargaining, jury selection, persuasion tactics in the courtroom, presumption of innocence, jury size, jury decision rules, and sentencing and punishment.

19.247 Body Language 4 Q.H.

This course examines the messages we send by posture, facial expression, gesture, gait, and interpersonal distance, and goes on to consider various body language codes, such as sign languages.

19.248 Magic and Illusion 4 Q.H.

This course investigates visual, auditory, and kinesthetic illusions and constancies, demonstrating the manner in which we can be misled by our perceptions, and how professionals, such as magicians (who will demonstrate certain topics), take advantage of this fact.

19.249 Movement in Animals and Men 4 Q.H.

The physiological mechanisms of body movement and the ways in which the brain and spinal cord control these mechanisms are described to help provide a general understanding of this crucial aspect of living. We will attempt to answer questions on how we walk, catch baseballs, and drive nails, and how apparently frail people can mimic the strongest of weightlifters.

Note: See Modern Languages, 36.—for courses in American Sign Language (formerly 19.—).

Anthropology

20.100 Introduction to Anthropology 4 Q.H.

The course provides a survey of basic anthropological concepts, including human evolution, culture, and linguistics, with comparative

analysis of such socio-cultural institutions as kinship, economy, polity, and religion, especially in nonwestern societies.

20.105 Visual Anthropology 4 Q.H.

(Prereq. 20.100)

This course explores the anthropologist's use of film to gather information and analyze cultural subsystems. In addition to reading about and viewing films on particular peoples, a "laboratory" aspect of the course involving the use of tape and video equipment introduces students to the field.

20.108 Cultural Meaning and Everyday Experience

4 Q.H.

This course uses anthropological ideas to study the underlying patterns of meaning which lie below the surface of everyday thought and behavior. Topics include study of daily routines, leisure activities, joking and humor, speech patterns, current folklore and mythology, non-monetary economic transactions, kinship and friendship relations, and religion and ritual.

20.120 Introduction to Archaeology

4 Q.H.

This course offers a survey of the history of development of archaeology focusing intensively on key sites in the new and old worlds. Film and slides of sites and artifacts are used extensively.

20.130 Language and Culture

4 Q.H.

Topics include the function of language in human society and an introduction to the relationship between the patterns of language and the patterns of culture.

20.131 Folklore

4 Q.H.

This course focuses on cross-cultural comparisons of oral narrative traditions and literary sources. Various methods of analysis of folklore and its place and function in society and culture are examined. Identification of and methods for collecting material from local, currently active folklore traditions are given special attention.

20.132 The Anthropology of Music

4 Q.H.

This course offers an examination of music in a prehistoric and cross-cultural perspective, with emphasis on ethnomusicology and the comparison of western and nonwestern musical culture. Functions and social contexts of musical composition and performance; the ethnography of musical performance groups; the analysis of music as a form of communication.

20.135 Individual and Culture

4 Q.H.

This course explores the ways in which individuals are shaped by society and the ways in which they can effect change.

20.137 Culture and Mental Illness

4 Q.H.

This course offers discussions and analyses of the nature and meaning of culture, the role of culture in personality formation, culture and anxiety, anthropological approaches to the "normal" and the "abnormal," and the question, "Is mental illness psychological fact or cultural fiction?"

20.140 Evolution and Society

4 Q.H.

This course focuses on human social and cultural evolution and the theories which account for it.

20.151 Aggression

4 Q.H.

Focuses on concepts of aggression and how they affect our understanding of human society. Draws on materials collected by anthropologists, psychologists, and ethnologists.

20.157 Primitive Religion

4 Q.H.

The course focuses on nature and institutionalization of "primitive" religion. Topics include exploration of religious concepts and movements in relation to social, economic, and political organization.

20.158 The Anthropological Study of Myth

4 Q.H.

The course focuses on theories concerning the nature and meaning of myth. Exploration of the function of myth in social and cultural change. The structural analysis of myth.

20.160 Sex, Sex Roles, and Family

4 Q.H.

The course analyzes popular and scientific notions about sex and family by examining the social patterning of interactions in our culture, other cultures, and other species. Emphasizes the changing relationships between men and women. (See also 21.121.)

20.170 Culture in Transition

4 Q.H.

The course offers analysis of the changing patterns in social, economic, and political institutions. Modern social trends are discussed.

20.210 Tribal Societies and Cultures

4 Q.H.

The course focuses on the structures and institutions of bands, tribes, and chiefdoms; comparative and functional studies of tribal societies and the dynamics of change under contact situations.

20.214 Peasant Society and Culture

4 Q.H.

The course examines institutions of peasant society. The structure of traditional civilizations and the interrelations between urban and local communities; comparative and functional analysis of the peasant community and the dynamics of change from peasant to post-peasant and industrialized societies.

20.215 Peoples Who Live by the Sea

4 Q.H.

Course material includes examination of fishing, trade, shipbuilding, recreation, smuggling, and other uses of the sea; the social ecology, lifestyles, economics and politics of seacoast perspectives of evolutionary and community systems theory. Research projects dealing with current issues, site visits and field trips are required.

20.220 Anthropology Methods

4 Q.H.

The course examines theory and practice of methods of field research and data analysis. Students have the opportunity to take part in a field project.

20.230 Language and Communication

4 Q.H.

The course focuses on human communication, including language, theories of the evolution of language; language and kinesics, semiotics, social class, linguistic nationalism; linguistic problems in modernization.

20.240 Human Origins 4 Q.H.

The course offers an intensive look at the data on fossil remains and contemporary primates which are essential for an understanding of human physical and behavioral evolution. Efforts are made to bring the student into direct contact with primary materials.

20.245 Cultural Ecology 4 Q.H.

The course offers an introduction to questions of human adaptation to environment and the effect of different adaptations on natural systems.

20.250 Political Anthropology 4 Q.H.

The course investigates the origin and growth of the institutions of civilization. Topics include specialization and social stratification in the dynamics of traditional civilizations; some special topics of contact and change.

20.252 The Anthropology of Law and Conflict

4 Q.H.

Topics include settling disputes in stateless societies; forms and mechanism of social control; law as an indicator of cultural and social norms; the study of conflict resolution as an ethnographic tool. Some field research and analysis are required.

20.255 Economic Anthropology 4 Q.H.

The course examines types of economic systems in simple societies: reciprocal, redistributive, market exchange; economic relations as part of social relations; land-tenure systems, credit systems, savings mechanisms. The transition from subsistence to cash economics.

20.257 Religion and Myth 4 Q.H.

The course explores selected problems in anthropological studies in urban societies.

20.259 Urban Anthropology 4 Q.H.

The course explores selected problems in anthropological studies in urban societies.

20.260 Kinship and Society 4 Q.H.

This is a course for the advanced student only. A variety of kinship systems and their terminological and structural components, and the way in which their systems articulate with other social institutions, are studied.

20.270 Social Change and Economic Development

4 Q.H.

The course offers selected studies of processes of transportation and modernization in non-industrial societies.

20.280, 20.281, 20.282, 20.283, 20.284, 20.285, etc.
(each) 4 Q.H.

These are ethnographic area courses (New World Indian, African, Indian, Mediterranean, etc.) which will be offered as the Department's resources permit.

20.290, 20.291 Directed Study 4 Q.H.
(Prereq. Department approval)

The course offers independent work on a chosen topic under the direction of members of the Department. Limited to qualified seniors preparing in anthropology with approval of the Department chairperson.

20.295, 20.296, 20.297, 20.298 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

20.801, 20.802 Theory

Qualified undergraduates may wish to take this graduate school course. Permission of the instructor is required for registration.

Sociology

21.100 Introduction to Sociology 4 Q.H.

The course explores basic concepts and theories concerning the relationship between individuals and society. Emphasis on the influence of culture, social structure and institutions in explaining human activity. Social groups, socialization, community, class, power, and social change, among other substantive issues, will be discussed and analyzed.

21.103 Sociology of Boston 4 Q.H.

(Does not meet elective requirement for soc./anthr. major)

The course examines the city of Boston from the perspectives of environmental development, neighborhood and intergroup relations, in-

stitutional services, and symbolic meanings. The city is a laboratory for exploring the people's search for a lifestyle and the satisfaction of their needs. Field trips with workbook are required. Documentary and literary sources for term paper report are used.

21.107 Social Psychology 4 Q.H.
(Prereq. 21.100 or consent)

The course offers a socio-psychological approach to individual behavior in social contexts; introduction to basic concepts, such as socialization, identity, self-concept, role conflict, attitudes and attitude measurement, and groups and group processes, as well as an overview of major theoretical orientations and important substantive topics.

21.109 The Sociology of Everyday Life 4 Q.H.

The course examines the development, application, and consequences of rules for everyday activities (e.g., walking, talking, eating, drinking, sitting, smoking, laughing, crying, and sleeping); the effects of artifacts, culture, space, and territory on these activities, on social life, and on the expression of emotions.

21.111 American Society 4 Q.H.

(Prereq. 21.100 or equiv.)

The course focuses on American society, culture, and major social institutions: economic, religious, governmental, familial, educational, welfare, and recreational; social classes and stratification, mobility, and individualism.

21.112 Sociology of Poverty 4 Q.H.

The course offers an analysis of American poverty in historical perspective, drawing on comparisons with other countries. Critical evaluation of sociological research and theories relating to poverty. Consideration of causes and effects of poverty, as well as societal responses to poverty and its consequences. Suitable for students in applied fields, such as nursing, criminal justice, education, allied health, pre-med, and pre-law.

21.116 Environment and Society 4 Q.H.

This course examines environmental issues such as energy, pollution control, resource management, development, and conservation, which are perceived as societal phenomena involving human values and acted upon through interest groups and institutions. The course will study how environmental decisions reflect and influence both the social order and the very survival of human beings.

21.118 Population and Society 4 Q.H.

The course examines traditional and contemporary approaches to human population and its control. Topics include factors affecting birth and death rates. Societal implications of population quantity and quality in several situations, past and present. Rural-urban migration and mobility; racial, genetic, stratificational components for population analysis. Public policies and responses to fertility control in several societies. International efforts to understand and generate action on population issues.

21.120 Sociology of the Family 4 Q.H.

Topics include the family as a social institution in several selected cultures; interrelations of the family and political, economic, and educational institutions; social nature of personality; role-taking; individualism, mobility, and industrialism.

21.121 Sex-Gender Roles in a Changing Society 4 Q.H.

The course offers review and application of theories about the determinants of sex statuses and roles, from an historical and cross-cultural

perspective. The focus of the course is on women's status roles in different institutional structures of American society.

21.125 The Sociology of Private and Public Assistance 4 Q.H.

The course offers analysis of the functions of society's private and public assistance efforts. The socio-political, economic, and psychological factors in public welfare and the helping professions.

21.131 Crime, Conflict, and Justice 4 Q.H.

The course offers analysis of social and political forces which create and perpetuate criminality in contemporary American society; the impact of criminality upon law enforcement, judicial process, and the social order. Particular attention is devoted to violence as a means of resolving problems. In addition, this course examines the legal system's involvement in processes of social conflict and change.

21.132 Class, Crime, and the Police 4 Q.H.

The course focuses on the relationship between social class and crime, including power elite theory; class conflict; mobility patterns and value orientations. White collar, professional, and "political" crime is discussed as is the relationship between economic status and the functioning of the criminal justice system. The role of police and the interaction between law enforcement agents and deviants is analyzed, with emphasis on the potential for discriminatory application of the criminal law.

21.135 Juvenile Delinquency 4 Q.H.

The course examines the sociological and psychological approaches to and their implications for a typology of delinquency; problems of prevention, treatment and rehabilitation.

21.136 Violence in the Family 4 Q.H.

The course offers an examination of the physical, emotional, and sexual violence which occurs in families, with particular emphasis on child and spouse abuse. Definitions, prevalence, causes, prevention, and treatment of specific cases of domestic violence are analyzed. Social policy issues and problems of legal intervention are a primary focus.

21.137 Social Deviance I 4 Q.H.

The course explores the conditions under which people categorize others as different; processes by which persons so defined are assigned deviant status and assume appropriate roles and self-images; development of deviant careers and their relationship to deviant subcultures; situations in which people transform deviant identity.

21.138 Social Control I 4 Q.H.

The course examines formation of social bonds and the conditions under which they are ruptured; the emergence of deviance as an interactional problem; individual and societal reactions to the most prevalent forms of deviant

behavior. Analysis of agencies of social control, their definitions of problems, and responses to typical clients.

21.139 Social Problems 4 Q.H.
(Prereq. 21.100 or consent)

The course offers analysis of five major sociological perspectives on social problems (pathology, disorganization, value-conflict, deviance, and labeling); the conditions under which certain recurrent events, activities, and persons become redefined as social problems (e.g., mine disasters, marijuana smoking, and alcoholism); study of the typical responses to social problems and their consequences.

21.141 Drugs and Society 4 Q.H.

The course offers an introduction to the sociology of drugs. The course first examines social definitions of drugs, conditions of their use, and socialization into drug use. It then considers deviant drug use and effects of social control on definitions and use. A range of licit and illicit drugs will be considered, but major emphasis will be given to alcohol, marijuana, and heroin.

21.142 Sociology of Alcoholism 4 Q.H.

The course focuses on social responses to deviant alcohol use. The course examines, in sequence, drinking cultures and drinking practices in the United States; processes by which people are labeled "alcoholics," and the role of agencies of social control, such as the criminal justice system and the health care system, in labeling and in rehabilitation.

21.145 Cities and Society 4 Q.H.
(previously **Urban Society**)

Topics include the foundations of urban life in historical perspective; relationship of city life to environment, population, social organization, technology and cultural values; growth trends, urbanization, urban planning and citizen action.

21.146 Suburb and Metropolis 4 Q.H.
(Prereq. 21.100 or equiv.)

The course explores ecology of suburban and metropolitan growth, impact on center city and rural fringe, emergent life styles and institutional forms. Compares interdependence, issues of identity, autonomy, and accessibility. Analysis of different types of metropolitan political, social, and economic institutions. Prospects for regional action.

21.150 Race and Ethnic Relations 4 Q.H.
(Prereq. 21.100 or equiv.)

The course focuses on racial and religious groups, particularly with reference to the United States; special emphasis on historical development, specific problems of adjustment and assimilation, and specific present-day problems and trends.

21.151 Sociology of Prejudice 4 Q.H.
(Prereq. 21.100 or consent)

This course examines factors in the develop-

ment and maintenance of prejudice and discrimination. Topics include American race relations, anti-Semitism, sex roles, and stereotyping.

21.152 Race and Ethnic Relations: A World Perspective 4 Q.H.
(formerly **21.152 Comparative Race/Ethnic Relations**)

This course offers a cross-cultural analysis of race and ethnic relations in western and non-western societies. Explanations of race and ethnic relations in terms of contemporary developments, world problems, and ideological conflicts are included.

21.154 Sociology of Mental Health 4 Q.H.
(Prereq. 21.100 or equiv.)

The course provides a survey of sociological perspectives on mental health and mental disorder. Discussions, readings, and presentations explore the social history of mental illness, epidemiology, cross-cultural perspectives, patient's careers, social institutions of treatment, and policy implications. Areas of convergence between sociological concepts and psychiatry are examined.

21.155 Medical Sociology 4 Q.H.
(Prereq. 21.100 or consent)

The course provides an examination of the professions, training, institutions, and problems in health care, with an emphasis on those in the United States. Practical issues in the improvement of health care systems are considered.

21.156 Health Care as a Social Issue 4 Q.H.
(Prereq. 21.100 or consent)

The course explores the social and political dynamics of health care: who benefits from the system and defends it, who works for change, who wins and why. Topics include the social history of health care, occupational politics, community power structure and the health care setting, the planning and delivery of health services to "haves" and "have-nots," and the role of citizens in determining the future of health care through activism, lobbying, legislation, and participation in controlling the system. Case examples will be provided.

21.157 Sociology of Human Service Organizations 4 Q.H.

If human service organizations are to deal with society's problems they must address organizational problems and maximize efficiency and effectiveness. This course examines the principles of informed management and organizational problem solving in a variety of human service settings—social service agencies, hospitals, government bureaucracies, schools, and hospitals. Topics include theories of organizational behavior and structure, decision-making, leadership and authority, goal-analysis, and work and satisfaction.

21.158 Death and Dying 4 Q.H.
(Prereq. 21.100 or consent)

The course focuses on the treatment of death and dying, including problems faced by health care professionals, family members, institutions, the funeral industry, and the dying themselves. The course will discuss cross-cultural perspectives, the social distribution of mortality, the changing nature of death, and the ethical problems in determining life and death with particular attention to such issues as abortion, suicide, and ceasing medical intervention.

21.159 Aging and Society 4 Q.H.

The course offers a survey of issues and questions on aging, with special attention to social and economic consequences of the aging process, including retirement and productivity, health care problems, nursing home residences, widowhood, and the approach of death. Examples relating to aging in other cultures are presented in a search for new answers to social problems of aging in the United States. Students have the opportunity to learn to anticipate, cope with, and even prevent problems of aging that concern self, family, and clients/patients.

21.161 Social Inequality and Communication 4 Q.H.

The course provides an analysis of the ways in which groups and institutions, in both their ritual and everyday activities, communicate the idea of hierarchy and an individual's place in it, through face-to-face interaction, formal communication, and the use of space and time. A dramaturgical approach to social organization with special emphasis on status images in the media and the communication of social place by service organizations and professional groups. Includes some content analysis and observational fieldwork.

21.163 Students, Schools, and Society 4 Q.H. (Prereq. 21.100)

This course emphasizes the role of education in processes of socialization, social mobility, social control, and social change. Do social characteristics (sex, race, class, age, physical status) influence the school experience? Do schools provide opportunity and initiate change, or do they perpetuate the status quo in economic, political, and social life? Who goes to school, where, for how long, and with what result? How does educational advantage or disadvantage get translated into jobs and social status? Students are encouraged to draw on their own experiences to develop paper topics.

21.164 Sociology of Work 4 Q.H.

This course offers a study of the world of work, focusing on the development of occupational cultures, the nature of careers, and the meanings and implications of professionalization. As part of the course, students are encouraged to do a project on an occupation they are considering for a career or one in which they have had practical experience on co-op.

21.165 Sociology of Business/Industry 4 Q.H.

The course focuses on the role of industry in modern society; similarities and dissimilarities among industrial societies, bureaucracy and its alternatives, unions, supervision democracy and manipulation, the man on the assembly line, sabotage of the organization, and the role of wages and alienation.

21.166 Social Roles in the Business World 4 Q.H.

The course offers an analysis of the social structure of corporate and business life in contemporary America. Case studies from major accounting and/or industrial firms are presented and discussed. The "career line" in the world of business and management will be examined with a special focus on age/sex, racial/ethnic, and class/income barriers.

21.170 Sociological Perspectives on Consumerism and Consumer Behavior 4 Q.H. (Replaces 21.167)

The course offers an analysis of consumer-oriented issues, including interest groups, needs, values, institutional networks, decision-making processes, and situational impacts. Exploration of systemic benefits and costs of consumer-relevant actions.

21.175 Technology and Society 4 Q.H.

Does society control technology or is technology directing society? Has technology become dehumanized? How valid is the doctrine of technological inevitability? Can the technological "fix" be viewed as a "solution" to social problems? Is technology itself a social problem? What can be expected of "technology assessment"? What of the back-to-nature and anti-technology movements today: are they the waves of the future? These are some of the questions and issues which are discussed and analyzed. Students are expected to do considerable independent study and research.

21.176 Science and Society 4 Q.H.

Science has had profound effect on our society, and scientists have seen the ways in which political, economic, and social forces have guided developments in their fields. Issues such as "responsibility" and "autonomy" created by this interdependence will be explored. Emphasis is on the social structures within which science operates and is communicated, and science as an occupation and profession, as well as a system of thought and set of tools for producing knowledge.

21.180 Sociology of Religion 4 Q.H. (Prereq. 21.100)

The course offers a comparative and analytic treatment of religion as a social institution, focusing on the relationships between religious organizations and other social institutions, with particular emphasis on the American experience. Religion as an agent of social change and stability is included.

21.185 Sociology of the Arts 4 Q.H.
(Prereq. 21.200)

The course offers an examination of the relationship between the social organization of society and the forms of art produced—the social role of the artist, how the arts are “manufactured” and distributed, the artistic consumer and his/her relationship to art and the artist, social support for the arts. The course deals with a variety of art forms, emphasizing the performing arts.

21.190 Leisure, Sport, and Society 4 Q.H.

The course provides an analysis of the social origins and functions of leisure activities, with special emphasis on games and sports as forms of leisure. Considerable emphasis is given to cross-cultural and historical analysis as well as to the relationship between leisure activities and various social institutions—economy, polity, family, and religion.

21.200, 21.201 Group Behavior I and II 8 Q.H.
(Formerly Group Behavior—The Sociological Imagination)

The course explores how individuals interact in groups and how groups interact with each other. The reflexive self, social aspects of language, situational learning. Group perspectives, careers, institutions, and worlds.

21.207 Seminar In Social Psychology 4 Q.H.
Focus is on the interaction of psychological and group processes. Students are required to read original theoretical and research monographs in the field. Topics may include prejudice, reference groups, sex roles, conformity, leadership, aggression, communication, collective behavior, and achievement.

21.215 Collective Behavior 4 Q.H.

Topics include the rise of new group forms in response to persistent social unrest; study of masses, crowds, and publics; analysis of specific instances of collective behavior such as race riots, wildcat strikes, prison revolts, and campus disorders.

21.217 Mass Communication and Public Opinion 4 Q.H.

Topics include factors in the formation and development of public opinion, the effect of television on children, mass communication as social organization, media-depicted images of society, the role of personal influence, the process of rumor, the use of mass media by the poor, propaganda analysis, and the latent and manifest functions of mass communication

21.218 American Demographics 4 Q.H.

This course is essentially an applied research experience in which students have the opportunity to study the major areas of demography. The focus of the course is on the resources of the U.S. Census Bureau and, in particular, the data products available from recent census surveys.

21.221 Seminar In Social Welfare 4 Q.H.
Discussion of problems in social welfare observed in the term between “Problems” and “Practicum.” A research paper, based on directed field work in the intervening term, is the major course requirement.

21.231 Sociological Theories of Crime 4 Q.H.
The course explores patterns and social forces involved in criminal behavior. Analysis of sociological theories of criminality and comparison of these to other explanations of crime.

21.236 Applied Sociology: Practice and Theory 4 Q.H.

The course provides an analysis of the conditions under which sociological knowledge is applied to social problems, the kinds of problems, and the degree of effectiveness of this application. Particular attention is paid to research and demonstration projects that derive from sociological theory.

21.237 Social Deviance II 4 Q.H.

The course offers an examination of the leading theories of deviance (anomie, subcultural deviance, labeling) and their principal variants; study of their assumptions, conceptions, propositions, and supportive evidence; analysis of empirical studies in each theoretical tradition.

21.238 Social Policy and Social Intervention 4 Q.H.
(Formerly Social Control II)

The course focuses on study of the formation of social policies in response to social problems; analysis of policy and problem, supporters and opponents of policy change, conditions under which control agencies adopt new policies, and effects of policy change. Particular emphasis on case studies of social action and legal change.

21.239 Introduction to Statistical Analysis 4 Q.H.
(Prereq. 21.100 or consent)

This course examines the application to social data of the principles of measurement, probability, measures of centrality, tests of significance, and techniques of association and correlation.

21.240 Research Methods I 4 Q.H.
(Prereq. 21.100 and 21.239 or consent)

This course introduces students to the research process through an examination of the rules of evidence in empirical research and the place of values. Students have the opportunity to learn how to design and critique types of sociological research, how to collect qualitative and quantitative data, and how to sample populations.

21.241 Research Methods II 4 Q.H.
(Prereq. 21.100, 21.239, and 21.240 or consent)

Students are required to complete the research project begun in Research Methods I; practice coding, building indexes, scaling, table construction; introduction to use of the computer.

21.242 Qualitative Research Methods 4 Q.H.
The course offers an introduction to sociological

fieldwork—methods of gathering data by extended observation and participation with people in natural settings. Students will take part in a series of observations designed to teach the basic skills of open-ended interviewing, observing, recording, and analyzing data. The theoretical base will be symbolic interaction.

21.243 Human Services Research and

Evaluation 4 Q.H.
(Prereq. 21.239 or other statistics, 21.157, or permission)

This course covers basic issues in applied research and the evaluation of services including attention to the purposes of evaluation, ethics, formulating questions and measuring answers, designing evaluations and planning oriented research, the turbulent setting of action programs, and the utilization of evaluation results. Suitable for students majoring in human services, sociology, psychology, nursing, health education, and related fields.

21.245 Community Analysis 4 Q.H.
(Prereq. consent of instructor or 3 soc./anth. courses)

This course explores types of human settlements, focusing on the interaction between people and their political, economic, and social environments. Topics include power structure and citizen action to influence institutions; skills in community analysis, including use of documents, survey, observation, and evaluation of needs and resources; strategies of conflict, cooperation, and negotiation to attain community and group ends.

21.246 Seminar in Urban Studies 4 Q.H.
(Prereq. 21.145 or consent)

Interdisciplinary approaches to urban studies are compared according to problem areas and research methods. Students have the opportunity to extend previous term paper projects after exposure to social action and social systemic theoretical perspectives.

21.250 Political Sociology: Who Gets What 4 Q.H.
(Prereq. Consent or four soc./anthr. courses)

This course offers an examination of formal political structures and informal quasi-political groups. Topics include sociological analysis of ideology, class politics, mass movements, and the conflict of various social and economic groups as they vie for political power and influence.

21.255 Administration and Formal Organizations: People, Machines, and Bureaucracies 4 Q.H.
(Formerly **Sociology of Formal Organizations**)

The course focuses on principles of formal organization. Topics include theories of bureaucracy and concept of authority; communication systems and other conceptions of formal

organization. Structure of work groups and their effect on the larger organization. The social content of organizations.

21.256 Comparative Human Services I 6 Q.H.
This course offers an intensive look at the American human services system. The course is designed to afford upperlevel undergraduate and graduate students the opportunity to study the origins, development, and present state of human services in the United States. The course involves lectures as well as field visits in the Boston area. In addition to the normal classroom activities, independent study is provided.

21.257 Comparative Human Services II 6 Q.H.
This course offers an intensive study of the British human services system. This course provides students the opportunity to immerse themselves in the social and cultural context of British human services and involves field trips in London designed to examine first-hand the planning, administration, and delivery of human services in Great Britain.

21.260 Social Stratification: Class, Status, and Power 4 Q.H.
(Prereq. Consent or four soc./anthr. courses)

Topics include theories of social inequality, concepts of social class, aspects of status and role difference, criteria for social mobility.

21.265 Sociology of Occupations and Professions 4 Q.H.
(Prereq. Consent or four soc./anthr. courses)

Topics include the meanings of work; division of labor and specialization; analysis of occupational structure and patterns of recruitment, training, and career preferences; the classic professions and new trends in professionalization.

21.270 Class, Power, and Social Change 4 Q.H.
(Prereq. 21.200 and junior or senior standing in soc./anthr. or consent)

The course focuses on theories of social equality and inequality as applied to the exercise of power, and the growth and development of social movements and group conflict as seen from the point of view of large-scale social change. *Required of majors.*

21.280 Classical Social Thought 4 Q.H.
(Prereq. Three soc./anthr. courses)

The course examines the development of sociology from the history of social thought. The emergence of several schools, beginning with Positivist Organicism and Conflict Theory.

21.281 Current Social Thought 4 Q.H.
(Prereq. Three soc./anthr. courses)

A seminar-lecture course in which formalism, social behaviorism, social action theory, and functionalism are studied critically.

21.282 Feminist Perspectives on Society 4 Q.H.
(Prereq. 93.131 or equiv., or permission of instructor)

This course examines a sampling of the burgeoning feminist literature in the social sciences and in theory, focusing on at least three major tendencies in this literature: radical feminism, socialist feminism, and neo-Freudian feminism. Specific topics include the origins and/or universality of women's oppression; women's work under capitalism; socialism and women's liberation; and family structure and the reproduction of gender.

21.287 Senior Seminar 4 Q.H.
(Senior standing in soc./anthr. or consent)

The course provides the opportunity to analyze, from sociological perspectives, student experience in work and voluntary service, and to develop and extend research interests related to that work or action experience.

21.288, 21.289, 21.290, 21.291 Directed Study (each) 4 Q.H.

(Prereq. Junior or senior standing in sociology or consent)

The course offers independent work on a chosen topic under the direction of members of the Department. Limited to qualified students with approval of department chairperson.

21.292 Seminar in Current Emphases in Sociology: Writing and Talking in Sociology (Prereq. Junior or senior standing in soc./anthr. or consent) 4 Q.H.

The class considers prevailing modes of presentation in major journals and verbal presentation in teaching, consulting, etc. Class members are required to submit examples of their own writing for analysis.

21.293 Seminar in Current Emphases in Sociology 4 Q.H.

(Prereq. Junior or senior standing in soc./anthr. or consent)

This course offers review and discussion of selected sociological topics.

21.295, 21.296, 21.297, 21.298 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the

section on the Junior-Senior Honors Program on page 5.

93.120 An Analysis of American Racism 4 Q.H.
This is a seminar in contemporary aspects of racism in America. The cycle by which racism in our institutions helps form our attitudes, and the ways in which our attitudes, in turn, shape our institutions, is studied and discussed. Emphasis is on the practical, day-to-day aspects of racism, rather than the theoretical and historical.

93.130 Professional Practices: Individual & Social Dimensions. 4 Q.H.

The course explores the dimensions and dilemmas of freedom and responsibility confronting professional people practicing within limits set by socio-economic conditions, by clients, and by other professionals. Case histories are examined to illustrate the dilemmas professionals face, the choices which are typically made, and the consequences these have on the freedom of the practitioner, and on personal and professional integrity.

93.131 Introduction to Women Studies: Image, Myth, and Reality 4 Q.H.

This is an introductory course in the study of women in society, encompassing the historical, political, economic, and social processes which have created both the image and the reality of women in contemporary society. The course offers an overview of the many different disciplinary approaches to the study of women.

93.204 Health Professions: Past, Present, and Future 4 Q.H.

This course focuses on social history of the modern health professions. The course explores long-range patterns in the organization and regulation of the health professions, beginning with the Middle Ages and emphasizing the Jacksonian period, industrialization, modern professional organizations, the growing role of the state, responses of the health professions, and the future of health care in the United States under various corporate/government schemes for reorganization and "accountability."

Political Science

22.110 Introduction to Politics 4 Q.H.

This course offers a broad-based introduction to contemporary political science. Areas covered include a consideration of basic concepts in political analysis (e.g., power, authority, and sovereignty); the role of governmental institutions in the making of public policy; public opinion and processes of political representation; contemporary political ideologies; and the scope and methods of political science.

22.111 Introduction to American Government 4 Q.H.

The course provides an analysis of the American

governmental and political processes, studying constitutionalism, liberties, institutions, and political behavior.

22.112 Introduction to International Relations 4 Q.H.

The course focuses on elements of international relations, including sovereign power, and limitations on the behavior of nation-states. International law, diplomacy, the politics of international economic relations, and contemporary problems in international relations—peace and war, the arms race, detente, human rights, technology, population, and neo-imperialism will be covered.

22.113 Introduction to Foreign Governments and Societies **4 Q.H.**

(Formerly Introduction to Comparative Government)

The course offers a comparative study of parliamentary democracy in Western Europe, Communist totalitarianism in the Soviet Union, China, and Eastern Europe, and variations of these governmental systems in the "third world" countries of Asia, Africa, and the Middle East.

22.120 Conceptual Foundations of Contemporary Political Analyses **4 Q.H.**

The course provides an introduction to the conceptual problems associated with the study of politics, including scientific method and a general overview of various methodological perspectives, i.e., systems, theory, game theory, and survey analysis, as practiced by contemporary political scientists.

22.121 Research Methods I **4 Q.H.**

The course offers an introduction to the principal quantitative methods used in political analysis, public administration, political behavior, international relations, and policy sciences. Emphasis is on basic statistical techniques, survey methods, and SPSS programming.

22.122 Research Methods II **4 Q.H.**
(Prereq. 22.121)

This is an intermediate course in quantitative analytic techniques with emphasis on practical problem solving in areas of concentration, particularly political behavior, policy sciences, public administration, and international relations. Includes intermediate statistical techniques such as multivariate analysis and causal modelling, using SPSS and drawing upon machine-readable data.

22.130 Politics and the Mass Media **4 Q.H.**

This course analyzes several facets of the mass media: the role of newspapers, radio, and television in public opinion formation; their use and effectiveness in political campaigns; their objectivity and/or bias in reporting "the news"; their impact on political parties and the distribution of power between Congress and the President.

22.132 Political Behavior **4 Q.H.**
(Prereq. 22.110)

This course examines selected topics in contemporary political science from a political behavior perspective. Topics include political attitude formation and change, ideology, socialization, public opinion and voting behavior, political campaigning, political violence, and empirical democratic theory.

22.133 Political Parties and Pressure Groups **4 Q.H.**

An analysis of political parties and pressure groups in the American political system, with attention given to policy making, elections,

voting behavior, and state and national political trends.

22.134 The American Presidency **4 Q.H.**
(Prereq. 22.111)

The course provides a behavioral examination of the nation's chief executive. The presidential electoral process, the president's many constituencies, and the differing styles of various twentieth-century presidents are considered. The constitutional and extra-constitutional powers of the office, presidential relationships to Congress, the bureaucracy, and the judicial process.

22.135 American Constitutional Law **4 Q.H.**
(Prereq. 22.111 and junior or senior status)

Employing excerpts of United States Supreme Court decisions and other reading materials, this course attempts an analysis of some of the theoretical, structural, and substantive issues inherent in and relevant to the American constitutional system.

22.136 American Legislative Process **4 Q.H.**
(Prereq. 22.111)

This course offers a study of American national legislative structure, function, and behavior.

22.137 Civil Liberties **4 Q.H.**
(Prereq. 22.136 and junior or senior status)

Employing United States Supreme Court decisions and other reading material, this course examines the substantive and procedural guarantees of the Bill of Rights and the Fourteenth Amendment and their relationship to a liberal democratic society.

22.139 American Ideology **4 Q.H.**

This course offers an analysis of racism, nationalism, liberalism, and capitalism—four of the most profound American ideologies—from a behavioral perspective. Topics include examination of the historic roots of each, its impact on the electoral and legislative process, and the attempt to accommodate the contradiction of each in the contemporary American political experience. An attempt to understand the ongoing interaction of political ideology and the political process in American society.

22.141 State and Local Government **4 Q.H.**
(Prereq. 22.111)

This course introduces students to the political and administrative context of state and local government and surveys the structure, function, and politics of states and localities within the context of the United States Federal system. (Public Administration elective)

22.142 Introduction to Urban and Regional Planning **4 Q.H.**

The course focuses on the historical influences on American urban and regional planning and the contemporary institutional, theoretical, and technical issues in planning. (P.A. elective)

22.143 Urban Politics **4 Q.H.**

The course provides an analysis of the political,

administrative, economic, and social dynamics of urban areas within an historical perspective. (P.A. elective)

22.144 Housing and Community Development 4 Q.H.

The course offers a review of historical metropolitan growth patterns and the influence of public policy on the development of American cities. Topics such as urban renewal, suburbanization of low and moderate income housing, and new communities are discussed. (P.A. elective)

22.145 Housing and Urban Renewal 4 Q.H.
(Prereq. 22.111 and 22.143)

This course examines the technical, budgetary, intergovernmental, and social problems of housing and urban renewal.

22.146 Practical Politics 4 Q.H.
(Prereq. 22.111)

This course is designed to accentuate and systematically treat some of the problems of organizing for effective citizen action, partisan and nonpartisan, at the grass-roots level. An exploration of roles in political campaigning.

22.148 Sex Roles in American Politics 4 Q.H.
The course explores the relationship between what is and what ought to be—and why—in the roles of women in American politics. Topics include the traditional roles of women in politics, the suffrage movement, the woman as citizen and voter, the role of sex in achieving power and in political efficacy, and the place of women in “new politics.” Political action to promote women’s issues and modern feminism will also be covered.

22.153 European Parliamentary Systems 4 Q.H.
(Prereq. 22.113)

The course offers a comparative analysis of political culture, federal and unitary forms of government, and executive-legislative relations on the national level in England, France, and West Germany.

22.154 Arab-Israeli Conflict 4 Q.H.
The Arab-Israeli confrontation has its own dynamics, and its nature has changed through the decades. This course analyzes its interaction with the internal politics of the Arab states and Israel, Pan-Arab politics, and the role of the great powers in the region.

22.155 European Political Parties 4 Q.H.
(Prereq. 22.113)

The focus of this course is on political party organization and voter behavior in England, France, and Germany, with emphasis on party ideologies, strategies, campaigns, and elections, as well as socialization, recruitment, and participation of voters in the political process.

22.160 The Politics of Poverty 4 Q.H.
This course is concerned with what is referred to as the poverty system, i.e., how and why there is

poverty, how it affects people’s lives, and how it can be eliminated. As a discussion-centered course, relying also on simulations, small group work, and experience-based learning, it examines the relationships between poverty, racism, and the economic, political, and administrative systems. A number of alternatives will be evaluated and an opportunity provided for clarifying individual assumptions and feelings about poverty.

22.167 Techniques and Practices of Public Management 4 Q.H.
(Prereq. 22.261)

This course is oriented toward practical skills and techniques of public management and employs the case method in examining typical management problems at different levels of government. Time and resource management for public sector managerial personnel is also covered.

22.168 Human Services Administration 4 Q.H.
The ways in which human services are provided by the political, economic, and bureaucratic systems to low-income citizens are studied. The course is designed to help students develop knowledge of the public policy process, human services organizations, and delivery systems, and awareness of their values and potential as human services professionals. A discussion-based course for students interested in human services. (P.A. elective)

22.171 Law and Society 4 Q.H.
(Prereq. Open only to upperclass, nonpolitical science majors.)

This course examines the theory and practice of the American legal process and its impact on values. Also an analysis of the impact on these values of the military-industrial-technological complex.

22.173 Politics and Economic Problems 4 Q.H.
(Prereq. 22.111 or 22.177)

The course offers a survey of the relationship between economic developments and political processes in the United States. Among the topics considered are government planning of the economy, monopoly and government regulation, government programs to promote social welfare, and the impact of Federalism on the political-economic system.

22.175 Current Political Issues 4 Q.H.
The course provides an analysis of the constitutional and political background of selected contemporary public issues. Primarily for non-political science majors.

22.177 American Political Process 4 Q.H.
The course offers a general analysis of the American political system with emphasis on the topic of civil liberties. Not open to political science majors or anyone who has taken 22.111, Introduction to American Government.

22.178 The Politics of the Criminal Justice System 4 Q.H.

(Prereq. 22.111 or 22.177)

This course focuses on the criminal justice system from arrest by police to appeal to the Supreme Court of the United States. The roles of police, lawyers, judges, prosecutors, juries, and correction officers are examined.

22.179 World Politics 4 Q.H.

The course examines political continuum and change in the international system by observing both traditional actors, such as nation-states, and modern actors, such as multinational corporations, in relation to their goals and the means each uses to attain them. Primarily for non-political science majors; not open to anyone who has taken 22.112, Introduction to International Relations.

22.183 Comparative Public Administration 4 Q.H.

The course provides a comparative study of the approaches to public administration in selected democratic governments in the United States and Europe.

22.219 Eurocommunism 4 Q.H.

This course presents a study of the domestic and foreign policies of the Spanish, French, and Italian communist parties with special attention to their relations with the international communist movement.

22.220 The Politics of Imperialism 4 Q.H.

(Prereq. 22.112)

The course focuses on the political dynamics of penetration of foreign economies and foreign politics, considering such elements as military intervention, foreign aid, and the impact of the multinational corporations.

22.223 American Foreign Policy 4 Q.H.

The course examines formulation and conduct of foreign policy; role of the United States in politics since 1945.

22.225 Soviet Government 4 Q.H.

(Prereq. 22.113)

The course offers a study of Soviet political origins and behavior, with emphasis on recent changes in the party and state apparatus, the economy, and the administration of justice.

22.226 Soviet Foreign Policy 4 Q.H.

The course focuses on the evolution of Soviet foreign policy since 1917, with emphasis on the development of the International Communist movement and the onset of the East-West ideological conflict.

22.227 Communism in Eastern Europe 4 Q.H.

(Prereq. 22.113)

The course focuses on the Communist governments of Eastern Europe, with emphasis on their growing independence from Soviet Russia. Recent political change, economic liberalization, and new orientation in foreign policy.

22.228 Government and Politics in Africa 4 Q.H.

(Prereq. 22.113)

Topics include the governmental systems, political parties, socioeconomic problems, and foreign policies of selected states north and south of the Sahara.

22.231 International Organization 4 Q.H.

(Prereq. 22.112)

The course focuses on development of international organizations with special emphasis on the United Nations system. (P.A. elective)

22.233 International Law 4 Q.H.

(Prereq. 22.112)

Topics include territory and jurisdiction of states, treaties, recognition, peaceful settlement of disputes, resort to force.

22.238 Ethnic Conflict in International Perspective 4 Q.H.

The course offers a comparative study of ethnic conflict, with its religious, linguistic, racial, and economic roots in such places as Nigeria, Cyprus, Canada, Northern Ireland, Belgium, and the United States. World order implications and Great Power consequences of such confrontations will also be studied.

22.240 Totalitarianism and Dictatorship 4 Q.H.

(Prereq. 22.113)

The course presents an analysis of totalitarianism, dictatorship, and autocracy, including study of historical background, characteristics, theories of origin, nature, and significance; evaluation of techniques, ideologies (i.e. Marxism-Leninism), policies, and institutions. Particular attention is given to Soviet and German experiences.

22.242 The Politics of Revolution and Change

(Prereq. 22.113)

4 Q.H.

The course offers an analysis of revolution and change, contemporary and historical, with attention to both theory and practice. Topics discussed include major trends in contemporary politics and society, and the relationship between political change and technological, scientific, or social change.

22.243 Government and Politics of China 4 Q.H.

Topics include government and party organization, socio-economic problems and policies, concentrating attention on the influence of history, technology, and ideology as determinants of attitudes and behavior.

22.244 China's Foreign Relations 4 Q.H.

The course examines China's traditional view of international relations and its modification first by contact with the West and later by Marxism-Leninism. The course investigates China's role in changing the international system to accord more with its perspectives on sovereignty and equality and the principles of socialist internationalism.

22.245 The Politics and Policies of Developing Nations 4 Q.H.

The course presents a survey of recent political and related change among third-world countries of Africa, Latin America, and Asia. Topics included are the heritage of colonialism and achievement of independence, the realities of cultural pluralism, revolution and political violence, institution building, political leadership and role of ideology, political parties, the military in politics, and the international aspects of political modernization.

22.247 Government and Politics of Latin America 4 Q.H.

The governmental systems, political parties, socioeconomic problems and foreign policies of Latin American states. Focus will be on political change.

22.250 Government and Politics of Japan 4 Q.H.
(Prereq. 22.112 or 22.113)

Examines Japan's political development from the Meiji Restoration to the present, exploring the unique form of democratic government practiced in Japan and evaluating the effects of Japanese political theory, war, the American occupation, the Emperor, and Japanese political and cultural values on Japan's political institutions. Japan's present and future impact on the international system is also considered.

22.257 Government and Politics in the Middle East 4 Q.H.

Approaches the political, economic, military, and ideological factors within the Arab states and Israel, inter-Arab politics, the Arab-Israeli conflict, and the great power rivalry in the region.

22.259 Political Development in Revolutionary Societies 4 Q.H.

(Prereq. 22.112 or 22.113)

Examination of political development in selected revolutionary societies, including Cuba.

22.260 Public Policy Analysis 4 Q.H.

An analysis and evaluation of public policy in the United States.

22.261 Public Administration 4 Q.H.
(Prereq. 22.111)

Introduction to the theory and practice of public administration, with special emphasis on the generalities of institutions, processes, and behavior of bureaucratic organizations.

22.262 Organization Theory 4 Q.H.

Provides a broad overview of organization theories, their history, and development. Specific attention is given to developing a paradigm for public organizations which focuses on the relationships of economic, democratic, bureaucratic, technological, and humanistic imperatives. The student will prepare a research paper and consider the implications of this paradigm for future organizations.

22.263 Public Management 4 Q.H.
(Prereq. 22.261)

What problems are entailed in the management of public agencies? How do public managers seek to solve these problems? These questions are explored through the use of descriptive, analytical, and case materials. (P.A. elective)

22.266 Public Personnel Administration 4 Q.H.
(Prereq. 22.261)

Designed to be an overall introduction to the field of public personnel administration. It includes examination of selected topics such as recruitment, selection, classification, care development, equal opportunity, public employee unionism and collective bargaining.

22.267 Public Budgeting 4 Q.H.
(Prereq. 22.261)

Focuses on the function of budgeting in a variety of governmental contexts, specifically, the appropriations process, the budget as a management tool, and the public policy impacts of the budget. Budgeting techniques are emphasized within this context.

22.269 Governmental Accounting 4 Q.H.
(Prereq. 22.261)

Basic accounting principles and methods used by government agencies including the utilization and interpretation of financial statements, auditing, and the application of electronic data processing in government record keeping. (P.A. elective)

22.270 Political Theory 4 Q.H.
(Prereq. Junior or senior status or consent)

An analytic approach to the study of key political concepts: power, equality, freedom, authority, obligation, ethics, law, rights, punishment, state, sovereignty.

22.272 Selected Issues in Political Theory 4 Q.H.
Intensive examination of some dominant issues in modern political theory.**22.273 Political Thought I 4 Q.H.**
(Prereq. Junior status or consent)

An analytical and historical examination of the great political thinkers and the main trends of political thought from the Grecian age to the Renaissance.

22.274 Political Thought II 4 Q.H.
(Prereq. 22.273)

An analytical and historical examination of the great political thinkers and the main trends in political thought from the Renaissance to the twentieth century.

22.276 American Political Thought 4 Q.H.
The contributions to political theory of the main social, economic, political, intellectual, and philosophic movements in America from the colonial period to the present.**22.278 Contemporary Political Thought 4 Q.H.**
Analysis of current ideals, ideologies, and

political movements, including existentialism, neo-Marxism, black power, women's liberation. The decline of ideology and behavioralism.

22.282 Seminar in American Government 4 Q.H.
(Prereq. Senior political science major and consent)

An in-depth study of selected topics in American government.

22.283 Seminar in International Relations 4 Q.H.
(Prereq. Senior political science major and consent)

This course offers an in-depth study of selected topics in international relations.

22.284 Seminar in Comparative Politics 4 Q.H.
(Prereq. Senior political science major and consent)

This course offers an in-depth study of selected topics in comparative politics.

22.285 Senior Seminar in Political Science 4 Q.H.
(Prereq. Senior political science major)

This course offers an in-depth study of selected topics in political science.

History

23.101 Western Civilization 4 Q.H.
This course explores the major ideas and institutions of Western Civilization from ancient times to 1648.

23.102 Western Civilization 4 Q.H.
A continuation of 23.101, covering the period since 1648.

23.108 Hitler's Germany (Group B) 4 Q.H.
This course offers a study of the origins and nature of Hitler's Third Reich, emphasizing the personal lives of Nazi leaders in an attempt to understand how seemingly ordinary people could enthusiastically promote wars of aggression and revel in genocidal policies.

23.109 Population in European History (Group A or B) 4 Q.H.

This course provides an application of the principles of demography to European history from Roman times to the present, with attention to the interaction of birth, death, marriage, and migration rates with climate change, epidemic disease, war, economic developments, social upheaval, and political policy.

23.111 Ancient Greece (Group A) 4 Q.H.
Topics include the origins and development of Greek civilization; political evolution of Hellenic society from tribal to city-state organization; growth and application of Greek religious, political, and ethical ideas.

23.112 Ancient Rome (Group A) 4 Q.H.
This course examines Roman civilization in two sequences: 1) the rise of Roman power under the

22.286 Research Seminar in Political Science 4 Q.H.

This course focuses on the preparation of a research paper.

22.288 Seminar in Public Law and Social Issues (Prereq. Junior or senior and consent) 4 Q.H.

This course examines some of the continuing and perplexing social problems through the media of legal writings and recent court cases. Issues to be discussed include abortion, euthanasia, family planning, criticism of public officials, political activism, the right of privacy, obscenity, racial and economic discrimination.

22.290, 22.291, 22.292 Directed Study (each) 4 Q.H.

This course offers independent work on chosen topic under the direction of members of the Department and is limited to qualified juniors and seniors with approval of instructor.

22.295, 22.296, 22.297, 22.298 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Republic and 2) the decline of Roman power under the Empire.

23.115 Medieval Europe (Group A) 4 Q.H.

Topics include Europe from the barbarian invasions to the late thirteenth century; the expansion of Christianity and the institutionalization of church and papacy; the emergence of the Holy Roman Empire, England, and France as political units; social, cultural, and economic developments.

23.116 Europe in the Age of the Renaissance (Group A) 4 Q.H.

The course focuses on Europe from 1300 to 1500, when alternatives to medieval institutions became increasingly apparent. Special attention to political, economic, and cultural changes in Italy and Northern Europe.

23.122 Europe, 1870—1921 (Group B) 4 Q.H.

The course focuses on Europe from the Franco-Prussian War to the post-World War I settlement: the growing tensions and rivalries and the declining certainties of the end of the nineteenth century, the origins of World War I, the War itself, the Russian Revolution, and the Peace of Paris.

23.123 Europe since 1921 (Group B) 4 Q.H.

The course focuses on Europe from the Versailles Settlement: the rise of totalitarianism, the Depression, the crises of liberalism and of the European mind, the Appeasement Era, World War II, the Cold War, the end of colonialism, and Europe today.

23.127 The French Revolution and Napoleon (Group B) 4 Q.H.

The course examines the history of France in the age of the *ancien regime* and the Enlightenment as background for the French Revolution and Napoleon.

23.130 England to 1688 (Group A) 4 Q.H.

Topics include prehistoric Britain, the Anglo-Saxons, the Normans, the Plantagenets, the Tudors, and the Stuarts, with emphasis on the development of parliamentary institutions until the Glorious Revolution.

23.131 England since 1688 (Group B) 4 Q.H.

The course focuses on England from the Glorious Revolution to the present, with emphasis on the development of Parliament, the Industrial Revolution, nineteenth-century reaction and reform, the World Wars, and the rise of socialism.

23.134 Tudor England (Group A) 4 Q.H.

This course offers a study of England from the late fifteenth to the early seventeenth century. Topics include an examination of the Tudor contribution to the development of political and social institutions; the Protestant Reformation and the relationship between religion and politics; social and economic changes and their relationship to the Elizabethan Renaissance. Particular emphasis is placed on intellectual and cultural developments and England's relationship to Europe and the New World.

23.135 Victorian England (Group B) 4 Q.H.

The economic, social, and political life of the English people during Victoria's reign.

23.137 The Decline of Great Britain**(Group B) 4 Q.H.**

The economic, social, and political life of the English people in the twentieth century.

23.138 Irish Civilization (Group B) 4 Q.H.

The course examines the history of Irish civilization from the earliest hero sagas and their impact on Irish values, to the Irish independence movement, the prototype and model for many other twentieth century liberation movements.

23.139 History of Modern Italy (Group B) 4 Q.H.

The course offers a survey of the social, economic, and political development of the modern Italian state from the seventeenth century to the present. Emphasis on the problem of modernization.

23.140 Imperial Russia (Group B) 4 Q.H.

The course focuses on the emergence of Russia as a recognized European power, westernization and expansion in the eighteenth century, the impact of Napoleon, reform and revolution.

23.141 Soviet Russia (Group B) 4 Q.H.

The course examines forces molding the history of Russia since 1917, internal developments, and foreign relations.

23.142 Islam Resurgent (Group D) 4 Q.H.

The course offers an analysis of what has been called "the militant revival of Islam" as a rallying point for revolutionary or reformist movement in the Muslim world. The course encompasses the Middle East, south and southeast Asia, Africa, and the central Asian republics of the Soviet Union.

23.145 The Modern Middle East (Group D) 4 Q.H.

Focus of this course is on the Middle East since 1800, with emphasis on the background of present problems.

23.146 Contemporary Middle East**(Group D) 4 Q.H.**

The course focuses on political, economic, and social developments in the Middle East since the end of World War II.

23.149 Imperialism (Group B) 4 Q.H.

The course examines the rise and fall of the European colonial empires with an emphasis on the period of the late eighteenth to the twentieth centuries. Attention is given to theories underlying imperial expansion and the impact of imperialism on colonies and colonizers.

23.160 History of Science and Technology**(Group A or B) 4 Q.H.**

The course offers an interdisciplinary survey of the development of science and technology, integrating theories of the philosophy and sociology of science within an historical framework. Emphasis is placed on the environmental and ideological conditions that contribute to the birth and growth of the various sciences and to the relationship between these conditions and technological innovation.

23.162 Technological Transformations of**Society (Groups B, C, D) 4 Q.H.**

The relationship between technological innovations and the world in which they take place. Discussion of conditions necessary for discovery and innovation. Impact of technology on political, economic, and social environments.

23.163 Capitalists and Capitalism**(Group B or C) 4 Q.H.**

This course provides an examination of capitalism from the Renaissance to the present with attention to the role of major individual capitalists like the Rothschilds, Krupps, and Rockefellers, and to the impact of great historical forces like war, the Protestant Reformation, and imperialism.

23.165 The Family in European History**(Group B) 4 Q.H.**

The course offers an examination of issues in the history of the European family from the late Middle Ages to the present. Topics include marriage and sexuality, childrearing practices, the effect of industrialization and revolution on family life, the Victorian family, and the evolu-

tion of the modern family. Students will prepare their own family histories.

23.166 The Culture of Europe (Group B) 4 Q.H.
(Formerly **The Creative Matrix**)

The course provides an analysis of the culture of the West in the nineteenth and twentieth centuries, focusing on the conjunction of social, cultural, and psychological forces that encouraged or retarded creativity. Attempts will be made to show the interconnections among the arts, social sciences, and sciences within each of the periods covered.

23.168 Class, Love, and Power in Western Europe (Group B) 4 Q.H.

The course provides an examination of social change in Europe since 1800 with emphasis on the interaction of industrialization, class movements, demographic trends, and revolutionary upheavals.

23.172 Recent Leaders of Asia (Group D) 4 Q.H.

The course focuses on the lives and roles of recent leaders of Japan, China, India, and other Asiatic countries.

23.173 China since 1850 (Group D) 4 Q.H.

The course focuses on the history of China from the Opium War to the present, with emphasis on the concepts and policies of the Communist regime since 1949.

23.174 Japan since 1850 (Group D) 4 Q.H.

The course examines the history of Japan since its opening by the West. Emphasis on westernization, the rise of Japan as a world power, and the Japanese experience since the defeat in World War II.

23.175 Communist China (Group D) 4 Q.H.

Focus of this course is a close look at the policies and achievements of China since the Communists won control in 1949. The major emphasis is upon the background for Communist victory, the unique vision of Mao Zedong and his prescriptions for China, and the radical changes since Mao's death and the arrest of the "Gang of Four."

23.178 Health and Sickness: Historical Perspectives (Group A, B, C, or D) 4 Q.H.

The course offers a survey of medical theories, particularly those concerning the courses of disease and the health care systems or institutions derived from them, from ancient times to the present. Medical theory and practice will be related to both the general history of the period and the particular political, economic, or social circumstances which influenced attitudes regarding health care.

23.179 Protesters, Prisoners, and Professionals: The History of Female Deviance and Its Punishment (Group A, B, or C) 4 Q.H.

The course identifies concepts of female deviance from the early Christian era to the present, analyzing these concepts in the social contexts in which they were generated and examining varying reactions to deviant females over time. Specific topics include witchcraft, sexual deviations, infanticide, property crime, and violent crime. The course is divided into four main sections: (1) Femaleness as Deviance; Historical Overview; (2) Unruly Women; (3) Women, Violence, Victimization; and (4) The Punishment of Female Deviants by the Contemporary Criminal Justice System.

23.182 Modern European Economic History (Group B) 4 Q.H.

The course provides a survey of the development of the Western World examined within the framework of economic theory, with attention to social and political ramifications.

23.184 Communism and Revolution (Group B) 4 Q.H.

The course focuses on the history of socialism and revolution from the early nineteenth-century utopias to the New Left of the 1960s.

23.185 Revolutions (Group A or B) 4 Q.H.

This course provides a review of the important theories of revolution and an analysis of the major early modern and modern revolutions, with a view to evolving a working theory of both political and generational revolutions for the twentieth century.

23.186 War in the Twentieth Century (Group B, C, or D) 4 Q.H.

The course provides an analysis of the causes, prosecutions, and effects of the major wars fought in the twentieth century. The course concentrates on the First and Second World Wars and on the Vietnam War. Using film, simulations, and other materials, classes explore the economic, social, cultural, and psychological impacts of these wars as well as their political, diplomatic, and material aspects.

23.188 History and Film (Group B or C) 4 Q.H.*

The course offers an exploration of various historical issues as seen through the eyes of historians and film makers. Both acted and documentary films are shown in combination with readings from a variety of source and interpretive materials.

23.189 Oral History (Group C) 4 Q.H.

This course focuses on the value of learning history from those who lived it. Students are expected to conduct tape-recorded interviews with people who can tell them about a selected aspect of twentieth-century history from firsthand experience.

23.195 Advanced Western Civilization 4 Q.H.
(Invitation of instructor of 23.101)

Students who demonstrate mastery of 23.101

through consistently superior work may be invited to work on an individual basis with their instructor. Together they will work out projects relating to the course.

23.196 Advanced Western Civilization 4 Q.H.

(Invitation of Instructor of 23.102)
Similar to 23.195 in relation to 23.102.

23.197 Society and the Sexes in Pre-Industrial Europe (Group A or B) 4 Q.H.

This course offers an examination of changing sex-roles from the early Christian era through the eighteenth century and an assessment of their significance within the social and political context of pre-industrial Europe. Topics include society's attitudes towards the sexes; family structure and marriage patterns; and male and female roles in economic life and in religious and political movements.

23.198 Women in Modern Europe

(Group B) 4 Q.H.

The course offers a study of women's position in Europe since 1789 to the present, focusing on their legal status and on their part in revolutionary movements, industrialization, war, politics, suffrage, socialism, and bourgeois feminism.

23.199 The Historian's Craft 4 Q.H.

The ways in which the historian studies the past and the nature of historical statements are examined. Problems considered include research techniques, changing conceptions of historical knowledge, and the relationship between the historian and the society in which he works.

23.200 Social Science Methodology 4 Q.H.

(Formerly Interdisciplinary Methods)

The course offers an introduction to social science methodology and quantitative techniques used in historical analysis.

23.201 Colonial America (Group C) 4 Q.H.

The course covers the discovery and exploration of the New World, the settlement of the English colonies on the North American mainland, their development to 1763, and the origin of their clash with England.

23.202 The American Revolution (Group C) 4 Q.H.

The course focuses on the coming of the American Revolution, its nature and progress, and its political, economic, and social aftermath.

23.203 Crime and Punishment: A History of Criminal Justice System in America

(Group C) 4 Q.H.

The course examines the evolution of the criminal justice system in the United States, with special emphasis on the impact of English common law, the changing role of law enforcement officers, reform movements, the female offender, the black experience, and the changing meaning of law and order in the United States.

23.204 Total Institutions and the Individual: An Interdisciplinary Approach

(Group C) 4 Q.H.

Using the tools of history, psychology, and sociology, this course examines the varying effects that total institutions, such as prisons, asylums, concentration camps, and the American slave plantation, have had on the human personality. An effort is made to develop a clearer understanding of how the human personality responds to such environments and of their stigmatic effects on the individual.

23.207 History of the Professions

(Group C) 4 Q.H.

The course examines the evolution of the classic professions of law and medicine in the nineteenth century and the emergence of new professions in engineering, nursing, accounting, and social work. Themes include professional-client, professional-employer, and professional-governmental relations as well as education, professional organizations, and sex-stereotyping.

23.210 The United States to 1877 4 Q.H.

The course focuses on the history of the American people from 1763 to 1877, with an analysis of the American Revolution and the major political, constitutional, diplomatic, economic, and social problems of the new nation.

23.211 The United States since 1877 4 Q.H.

The course offers a continuation of the survey of American history, with discussion of the emergence of an industrial economy, an urban society, world responsibility, and expanded federal government.

23.212 Topics in American History

(Group C) 4 Q.H.

Special topics in the history of the people of the United States from 1789 to the present.

23.213 American Urban History (Group C) 4 Q.H.

The course examines the development of urban society in the United States in the nineteenth and twentieth centuries, with emphasis on the effects of immigration and industrialization upon the politics, thought, and society of American cities.

23.214 History of Sport in America

(Group C) 4 Q.H.

The course provides a history of the major sports and their impact on American life.

23.216 American Reformers and Reform Movements (Group C)

4 Q.H.

The course provides an analysis of American reform, especially in the nineteenth century.

23.218 The Civil War and Reconstruction

(Group C) 4 Q.H.

The course focuses on the coming of the Civil War, its nature and progress, and the aftermath of Reconstruction.

23.220 The United States, 1890—1920

(Group C) 4 Q.H.

Topics include populism, progressivism, World War I, and the reaction of the 1920s.

23.221 The United States, 1920—1945**(Group C) 4 Q.H.**

The course examines the Depression, the New Deal, World War II, and mid-century, emphasizing the clash between liberalism and conservatism and the movement from isolationism to interventionism.

23.222 The United States since 1945**(Group C) 4 Q.H.**

The course focuses on America's diverse responses to postwar challenges of urbanization, economic change, civil rights, and Communism.

23.224 China and the United States**(Group C or D) 4 Q.H.**

The course offers an examination of the relations of China and the United States, including the period of the missionaries and opium traders, the era of special privileges, the Open Door, the first half of the twentieth century when China became America's favorite protégé, and the years of strain, warfare, and finally accommodation after the Chinese Communists came to power in 1949.

23.226 Governing Nineteenth-Century**America (Group C) 4 Q.H.**

The course offers an analysis of patterns of governing, with attention to public policy, the electorate, political parties and interest groups, in the context of social and economic change in the nineteenth century.

23.230 The Westward Movement**(Group C) 4 Q.H.**

The course examines America's westward movement and its impact on the political, social, and economic life of the nation.

23.233 America and the Sea (Group C) 4 Q.H.

Topics include the history of exploration and discovery of America; the development of fishing; the rise of ocean commerce; the history of the American Navy.

23.234 American Military History**(Group C) 4 Q.H.**

A survey of the complex relationship between American society and war, from the age of muskets to the neutron bomb.

23.235 American Diplomatic History**(Group C) 4 Q.H.**

The course focuses on the formation and administration of American foreign policy from the Revolution to the present.

23.239 The Roots of the Welfare State,**1883—1935 (Group C) 4 Q.H.**

The course concentrates on an examination of the formative years of the "welfare state" and the beginning of big government in America. Topics include the clash between new and old ways of governing during the gilded age, progressivism, and the New Deal, with attention to new policies in social welfare and morals,

transportation and commerce, taxation, civil liberties, and the process of politics.

23.240 The Growth of Government since 1935 (Group C) 4 Q.H.

This course offers an examination of the expansion of government in recent America and its impact on society. The size and cost of government is discussed from historical and non-American perspectives, and the evolution of welfare, taxation, management of the economy, presidential power, intergovernmental relations, and bureaucracy from Franklin Roosevelt's time are analyzed.

23.244 The History of Boston (Group C) 4 Q.H.

The history of Boston from the colonial time to the present with attention to the topographical growth and the ethnic composition of the city.

23.245 History of Massachusetts**(Group C) 4 Q.H.**

This course focuses on the political, economic, social, and intellectual history of Massachusetts from the Constitution of 1780 to the present. The impact of war, immigration, and industrialization, and the orientation and integration of Massachusetts in the Union are studied.

23.246 The Industrial Transformation of New England (Group C) 4 Q.H.

This course examines the process by which New England evolved from an agricultural to an industrial society and the reaction to industry's move from the area. Field trips to historical industrial sites are planned.

23.247 History of Media in America**(Group C) 4 Q.H.**

The course focuses on mass communication in American history, with special attention to the role of newspapers, magazines, books, films, radio, and television.

23.253 American Elites (Group C) 4 Q.H.

This course examines the life of elite individuals and groups in American society, especially in the nineteenth and twentieth centuries.

23.255 American Business History**(Group C) 4 Q.H.**

The course examines the rise of business in America; the role of the corporation; horizontal and vertical combinations; business and labor; business and government.

23.258 Work and Leisure (Group B or C) 4 Q.H.

How we work and how we play are important determinants of how we live. This course examines the historical evolution of contemporary patterns of work and leisure across cultural, sexual, and class lines. Subjects include the impact of machine technology on the worker and the workplace; workers' organizing in unions and professional organizations; changing concepts of the use of time; women's work and women's leisure; recreation and sports (both participant and spectator); and the rise of

the café and the saloon as sociable institutions.

23.260 The American Woman (Group C) 4 Q.H.
An analysis of women's economic and social roles from the colonial period to the present is offered in this course, with special attention to women's work, their roles in family and community, and nineteenth and twentieth century women's rights movements.

23.264 Sport in Recent America (Group C) 4 Q.H.
The course offers an examination and analysis of current issues in American sport, including violence, commercialism, litigation, racism, sexism, and the roles of government and the media.

23.265 The Automobile in America (Group C) 4 Q.H.
The course focuses on the impact of the automobile on American society in an historical context. Topics include inquiry into the abandonment of traditional prohibitions of motorized carriages and examination of the use of planning, taxes, and highway policies to foster the use of the automobile. The effect of the car on land use, recreation, and the economy. Contemporary issues such as pollution and energy.

23.287 History of Flight and Space (Group A, B, or C) 4 Q.H.
Beginning with the dreams of flight of the ancient Greeks and Leonardo da Vinci, the course traces the history of nonpowered flight from the balloon experiments of the Montgolfier brothers to contemporary hanggliders; powered flight from the Wright brothers through the SST; and rocketry and space travel from its earliest beginnings through "Enterprise."

23.270 The World since 1945 (Group B) 4 Q.H.
The course offers a thematic study of issues and movements that have influenced the world's history since the end of the Second World War. Subjects include the Cold War; the end of colonialism; urbanization; technology and ecology; cultures and counter-cultures; the "Global Village;" and the prospect for human liberation.

23.271 Third World Women (Group D) 4 Q.H.
This course provides an exploration of the role of women in the less-developed Third World areas with special emphasis on factors of change, development, and continuity.

23.279 Canadian History (Group D) 4 Q.H.
The history of Canada from the time of European settlement to the present, with emphasis on Canadian relations with the United States and on the background of the Quebec separatist movement.

23.280-23.285 Teaching Practicum In History (each) 1 Q.H.
(Prereq. Departmental approval)
Students who wish to tutor peers in Western Civilization may do so by enrolling in these courses sequentially. Each course requires three hours per week of tutoring.

23.286 Field Work in History I 4 Q.H.
(Prereq. 23.101, 23.102, 23.210, 23.211 and 16 Q.H. in other history courses)
This course offers directed work in historical societies, archives, museums, and other historical agencies. Students should consult the Department of History for details.

23.287 Field Work in History II 4 Q.H.
(Prereq. 23.286)
The course offers directed work in historical societies, archives, museums, and other historical agencies. Students should consult the Department of History for details.

23.295, 23.296, 23.297 Junior-Senior Honors Program (each) 4 Q.H.
For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

23.299 Directed Study 4 Q.H.
93.131 Introduction to Women Studies: Image, Myth, and Reality 4 Q.H.
An introductory course in the study of women in society, this course encompasses the historical, political, economic, and social processes which have created both the image and reality of women in contemporary society, and offers an overview of the many different disciplinary approaches to the study of women.

93.164 Introduction to Irish Studies 4 Q.H.
Introduction to Irish Studies is taught from the perspective of a number of fields in one week sequences: art, business, drama, history, literature, music, politics, and sociology. The purpose of the course is to introduce students to the important forces which have helped to shape contemporary Ireland and Irish-American culture.

African-American Studies

25.100 African-Americans in Science, Technology, and Medicine 4 Q.H.
The course studies the contributions that African-Americans have made to the development of science and technology in America. It examines the cultural and social factors which have encouraged blacks to work in the fields of science (biology, chemistry, physics) and technology

(engineering and medicine). Certification of blacks within the American scientific community and the availability of science to the past and contemporary African-American community are also explored. Readings, discussions, individual research topics and interviews with black scientists, inventors/engineers, and doctors are used to develop the basic course material.

25.102 Education Issues and Minority Communities I**4 Q.H.**

Some of the important issues in today's urban elementary and secondary education systems are the foci of this course. The analysts will look at the historical development of these issues, and students will be encouraged to think about and discuss their future significance.

25.103 Education Issues and Minority Communities II**4 Q.H.**

(Prereq. 25.102 or consent of instructor)

The effects of educational planning and budgeting in the urban community are discussed. Study also involves a comparison of the curricula for similar age groups in the urban community and in suburban school systems. The objectives and purposes of public elementary and secondary school education in the urban environment are discussed as these purposes affect the urban black student.

25.132 Black Private Enterprise**4 Q.H.**

What have been the rewards and failures of the private enterprise system for black America? Have black Americans made gains in private enterprise? Is the private enterprise system the best vehicle for the economic growth of black America? This course examines these and other pertinent questions crucial to understanding the relationship between private enterprise and black America.

25.133 The Welfare System in America**4 Q.H.**

The management of the distribution of public funds to needy persons has traditionally been one of the most sharply criticized government operations. How does the welfare system work, and how does it help or hinder those who receive aid? Differences in systems in different geographical areas receive attention.

25.134 The Impact of Culture on Nutrition**4 Q.H.**

Eating patterns and general nutrition are often shaped by social and cultural environments. Conversely, dietary patterns reveal much about both the distinctiveness and the powers of assimilation of minority groups. Black culture is discussed as it affects, and is reflected by, the general health, growth patterns, and nutrition of the urban black family.

25.136 The Economics of Urban Poverty**4 Q.H.**

Like most Americans and people from around the world, blacks migrated to central cities in America in order to better their economic conditions. However, unlike other migrants to urban centers, they were not assimilated into the social/economic mainstream, and there is evidence of flagrant job, housing, and educational discrimination against them even during periods of affluence. During recession or depression, their problems were compounded. Students have the opportunity to survey the above events from an economic framework.

25.138 Labor, Unions, and Black America**4 Q.H.**

(Prereq. 25.136 or consent of instructor)

This course surveys the rationale and origins of unions in America, including the International Workers of the World, the Dolly McGulres, and the anarchist movements. The course also surveys the history and status of current unionism in America and black involvement. These include AFL-CIO, Teamsters, and craft, trade, and professional service unions. Students are required to interview black members in several of these unions and write a paper based on the information gathered.

25.150 History of Blacks in the Media and the Press**4 Q.H.**

The course offers an historical and visual examination of the development of the African-American experience in the American mass media and press. Contemporary and historical literature, films, and people are a part of the study and analysis with respect to history, racism, images, psychology, and social movements. Newspapers, film, television and radio are prime focal points, and they are used to help form strategies for the future of black Americans.

25.170 Economic Issues in Minority Communities**4 Q.H.**

Minority lifestyles, perspectives, self-images, and social position in the urban community are all affected by economic factors, especially those specific to the minority poor. Students have the opportunity to examine these issues, particularly in terms of the application of basic economic theories to the economic realities of minority communities.

25.171 Poverty and Health Care**4 Q.H.**

Why do the poor fail to get good health care? The course discusses problems of the poor and will examine the entire health care system, including Blue Cross and Blue Shield, Medicare and Medicaid, National Health Insurance, low-income barriers to health care, and future directions of medical health care.

25.172 Community Medicine and Health Care Delivery**4 Q.H.**

(Prereq. 25.171 or consent of instructor)

This course provides both theoretical and practical insight into community medicine and the delivery of health care. Topics include overview of the total health care system and theoretical considerations of the role of community medicine, what it should be and how it meets problems associated with the delivery of health care. Practical issues are addressed through field trips to community health centers and lectures by community health officials.

25.178 Identity and Nationalism in Africa**4 Q.H.**

How have centuries of imperialism, the struggle for national unity, and the continuing problems of racism and rivalry between factions affected

the present identities and nationalist movements in Africa? This course explores problems peculiar to Africa and to any group of nations struggling against colonial ideas. Tribalism and the effects of European colonial partition on African identity are discussed.

25.179 Black Psychological Identity 4 Q.H.
So much is said of stereotyping in news, on television programs, and in literature. The shaping of the black identity over three centuries in America is a complicated and, perhaps, even elusive problem. This course looks at the impact of slavery, racism, war, and poverty on the evolution of the black identity in America.

25.180 Epidemiology of Black Diseases 4 Q.H.
Students are introduced to the science of epidemiology, the study of the occurrence of disease in populations. The concepts, principles, and methods of epidemiological analysis are explored with emphasis on specific diseases occurring with greater frequency in urban and black populations, such as cardiovascular conditions, sickle cell disease, and certain occupational and environmental illnesses.

25.191 Research Seminar 4 Q.H.
This course is divided into three parts, providing students the opportunity first, to identify a substantive area of their concern, i.e., welfare, political leadership, education, etc., and to define a related problem in a research context; second, to be supervised in designing a research methodology most appropriate for examining the problem area; and third, to conduct extensive research, testing the hypothesis and drawing conclusions based on data analysis techniques.

25.194 Field Research Seminar 4 Q.H.
(Prereq. Consent of instructor)
Seniors have the opportunity to work with a faculty member on an individual basis, while carrying out a particular research project off campus. Students are required to refine and polish a topic and outline for the Senior Thesis.

25.195 Directed Study for Senior Thesis 4 Q.H.
(Prereq. Consent of instructor)
The Senior Thesis is required of all African-American Studies majors; it offers students the opportunity to prepare a professional research paper under the close supervision of a scholar interested in students' particular research areas.

25.200 Introduction to African-American Studies 4 Q.H.
The course touches on several of the possible historical, sociological, cultural, and political avenues of study in the broad interdisciplinary spectrum of African-American Studies. It is intended to help provide an introductory overview of the field and will offer students the opportunity to identify areas for more specific focus.

25.201 African-American Literature I 4 Q.H.
The course offers a survey of African-American literature from the period of slavery to the present, with an emphasis on literature concerning the relationship between the rise of the black American and the development of African-American literature. The black experience as it is revealed in literature will be important in the discussion.

25.202 African-American Literature II 4 Q.H.
(Prereq. 25.201 or consent of instructor)
This course continues the survey of African-American literature; however, its primary focus is on principal writers and their major themes.

25.203 The Black Novel 4 Q.H.
The black novelist belongs to a unique literary group in the history of American fiction. Special attention is given to Chesnutt, Toomer, Wright, Ellison, and contemporary novelists, and to their different perceptions of the black experience in America.

25.204 Black Poetry 4 Q.H.
Black poetry has provided an important description of the black experience in American thought through three centuries. This course surveys the black American poet from colonial times to the present. Special attention is given to major poets and the influences that shaped their works.

25.205 Literary Imagery in Black Writing 4 Q.H.
(Prereq. 25.202 or consent of instructor)
How has the black writer perceived the experience of his people and of himself? And how has the black writer conceptualized his larger environment? Images of poverty and racism as seen by the black writer are used to show not only how the novel can be used for social-historical purposes, but for commentary on past and present racial problems.

25.208 African Civilization I 4 Q.H.
This course deals with the ancient empires of Africa, especially Ghana, Songhai, Mali, Zimbabwe, the city states of East Africa, and also the Congo Kingdom. Included are Ethiopian as well as Egyptian history and the controversies surrounding their history to 1800.

25.209 African Civilization II 4 Q.H.
(Prereq. 25.208 or consent of instructor)
This course on African civilization covers the period from 1800 to the present era. Emphasis will be placed on the relationship between Europe and Africa, the circumstances surrounding the imperialist partition of Africa, and the decolonization process.

25.210 Contemporary Issues in Black Society 4 Q.H.
This course offers an introduction to the various issues and problems that confront black Americans, including some of the realities of the

social, political, and economic problems of contemporary black experience. Students are asked to assess the validity of specific social theories in relation to the black experience.

25.211 Survey of Black Theatre and Drama

4 Q.H.

Theatre in America has been an important reflector of the national experience, and black theatre, especially in recent years, has served the same purpose for the black community. The course focuses on the development of black drama during the nineteenth and twentieth centuries, with emphasis on modern developments and their political and cultural significance.

25.212 The Black Family

4 Q.H.

How does the black family function, interpersonally and as a social unit? Anthropological and sociological theories deal with variations in family structure and the function of the black family in black society. The effects of slavery and colonization on the black family structure and functions are also explored. A side issue is a discussion of some of the differences and similarities between African, African-American, and African-Caribbean families.

25.213 History of South Africa

4 Q.H.

(Prereq. 25.209 or consent of instructor)

Initial attention is directed toward pre-colonial South Africa and the conflict between Africans and the Dutch and English settlers. The course then focuses on the formation and transformation of colonial policy after World War II, with particular emphasis on racism, neo-colonialism, liberation movement, and international involvement in the apartheid system.

25.214 History of East Africa

4 Q.H.

The first section of the course deals with the pre-colonial period and the problems of the partition of Africa. The second section focuses on the classical colonial period and the transformations of colonial policy after World War II, with particular emphasis on the ambiguity of decolonization and those features of the colonial system which seem to have become a part of the East African social and political environment.

25.215 History of West Africa

4 Q.H.

The history of West Africa has included the struggle for internal unity, economic development, and social justice. The Pan-Africanist ideology, W.E.B. DuBois's writings, African socialism, and the consolidation of power and leadership are some of the topical objectives in this study of African liberation, particularly the rise of West Africa.

25.216 The Black Experience in the Caribbean

4 Q.H.

The course offers a descriptive and interpretive analysis of the growth of the modern black community in the Caribbean. Though the focus will be on the contemporary period, the course will

examine that period in the context of colonialism and slavery in the Americas. Important racial, social, political, economic and religious issues will be addressed.

25.218 Black Man/Black Woman

4 Q.H.

Sociological and anthropological methods are used to examine black male and female personality development, as well as the development of black male and female behavior, self-image, sexual roles, and behavior within both the black and the white communities.

25.219 The Black Elderly in America

4 Q.H.

This course compares the demographic characteristics of black elderly Americans with those of the white elderly (age, sex, educational and income levels, occupations, sources of income, etc.). The course also studies and compares specific social characteristics of black and white elderly. In relation to the black elderly, these include the use of their time in relationships with primary and extended family groups and their own view of the history of their lives as black people in America. Such exploration also helps to give students a perspective on the future of blacks in the social and economic life of America. Students are expected to devise a questionnaire, interview senior citizens, and write a paper based on the information they collect.

25.220 Poverty, Ethnicity, and Crime

4 Q.H.

How closely related are poverty, race, and crime? Is the media misleading? What are the facts and frequency ratios between poverty and crime, and ethnicity and crime? Recent sociological and criminal research provide the basis for discussion.

25.222 Third World Political Relations

4 Q.H.

This course offers a comparative regional analysis of the political systems of third world nations of Africa, Asia, Latin America, and the Caribbean. Emphasis is on development strategies; problems of development, including such topics as national identity, political socialization and participation, national defense, and urbanization; and the positions of third world nations in the international community.

25.223 Urban Political Issues

4 Q.H.

This course offers an analysis of the sociopolitical problems attributed to being poor and living in a major urban setting, with emphasis on relationships between the political structure and urban dwellers. Specific focus is on problems of crime, unemployment, education, housing, health, police behavior, political representation, and the political impact of wealthy white enclaves on the urban poor.

25.224 Black Cultural Development in the United States

4 Q.H.

The course focuses on the rise of a distinctive black culture in the United States, with emphasis on examining the premise that the black

population in America has developed a cultural system which operates as a subsystem of the American cultural norm.

25.226 Oral Traditions 4 Q.H.

Oral traditions (verbal narrative, folklore, and shared verbal communication) have been of vital importance to the culture and survival of African-Americans. The course examines the origins and functions of black oral traditions, with emphasis on their impact on modern America and the arts. Students have the opportunity to interview elder black Americans to further their understanding of the significance of oral traditions in black experience.

25.234 Africa Today 4 Q.H.

With increasing numbers of nations striving for economic and political control in Africa, and with imperialist and colonial ideas remaining in the living memory of Africans, Africa presents a complex political and social picture to the rest of the world. This course examines some of the salient features of black art, politics, and identity in Africa.

25.236 Religion in Black American Society 4 Q.H.

Black life in America cannot be fully understood without a sense of the importance of religion in the community. This course looks at the impact of religion on social structures, group behaviors, moral codes, and belief patterns in black society. Topics include the church as a social organizer, the role of the black minister in the community, and the variety of black denominations in urban and rural areas.

25.237 African-American History I 4 Q.H.

This survey covers the development of black America from the period of slavery through the Reconstruction, with emphasis on the historical links between Africa and America and their impact on black development in the United States.

25.238 African-American History II 4 Q.H.

(Prereq. 25.237 or consent of instructor)
This course examines the development of black America from the Reconstruction to the present, and the effects of events in the United States and world history on the development of black America. There is special emphasis on contemporary issues and how these issues can be seen through an historical perspective.

25.239 Seminar: The Reconstruction Period 4 Q.H.

(Prereq. 25.237 and 25.238 or consent of instructor)

How was Reconstruction handled? Who benefited from it, and how did blacks figure in the plans drawn up in Washington and implemented in the South? Black attitudes toward Reconstruction, as well as the standard historical attitudes toward the lengthy process, are discussed.

25.241 Seminar: The Civil Rights Movement 4 Q.H.

(Prereq. 25.238 or consent of instructor)

The dynamism of the Civil Rights Movement was due both to several great leaders and to the support of a people for their leaders. Discussion covers roots of the movement and its social, economic, and political significance, as well as its effects on shaping the black image in modern America.

25.244 Fiscal Planning and Its Impact on Minorities 4 Q.H.

(Prereq. 25.170 or consent of instructor)

Fiscal planning at the city, state, and national levels is geared to satisfy the needs of certain groups. Minorities have lacked the powerful and influential lobbies more affluent groups have always had, and the economic and social positions of minorities have suffered as a result. Class discussion focuses on some of the financial and psychological problems which current fiscal policies cause the poor urban minorities.

25.246 Survey of Contemporary Black Political Movements 4 Q.H.

The modern black political movements were inspired by a full-scale evolution of black political thought in America. Analysis of this evolution examines socio-political contests which have served as catalysts to these modern movements.

25.247 Racial Integration and its Impact on Education 4 Q.H.

This course offers an examination of the historical struggle for desegregation. This course analyzes current urban issues in racial integration, and some of the projected effects of integration.

25.255 Public Policy Analysis 4 Q.H.

The course provides an analysis of the dynamics of the public policy formation process at the local, national, and international levels with particular attention to the implications of public policy for minority groups. Emphasis is placed on a critique of the policy maker, his/her role and power in the socio-economic setting.

25.260 Black Social and Ethical Thought 4 Q.H.

What shapes black social and ethical behavior? The patterns and problems discernible in this behavior as well as the difficulties blacks face in their dealings with the larger white community, are studied in terms of black self-image, moral perspectives, moral codes, and related issues of the behavioral sciences.

25.265 Caribbean History 4 Q.H.

This course offers a descriptive analysis of the development of the Caribbean from the era of slavery to the present, with focus on the period 1918-1962. The course emphasizes the historical analysis of the relationship of the Caribbean with the United States and black Americans.

25.267 Black Political Behavior 4 Q.H.

The course provides an introductory examina-

tion of the social and psychological dynamics of black political participation. Main issues of the course include identity and political socialization, and their impact on black voter turnout and partisan choices.

25.268 Poverty and Politics **4 Q.H.**

What is the role of politics in American poverty and how does the government deal with poverty? Major focus is on the social welfare programs generated by the political system to alleviate poverty and related problems. Additional topics include the attitudes of the poor toward the political system, its responsibility for their well-being, and their position in the socio-political environment.

25.269 Race Relations in America **4 Q.H.**

The course offers an examination of the interrelations of ethnic, cultural, and minority groups in the United States. Focus is on the nature of racial conflicts, discrimination, reverse discrimination, personal and institutional racism, and racial and ethnic stereotyping. Discussion considers avenues of improvement in attitude awareness and change.

25.270 Black Political Thought **4 Q.H.**

How do the black people as a unit view the American political system and the black people's chances of improving their lot in this country? This course examines black opinions, from the radical to the ultra-conservative, of the United States political system. The focus is historical in context and will address notions of political socialization and the development of black political ideologies.

25.271 Survey of African-American Art **4 Q.H.**

Black art, like black literature, has always been an important aesthetic social statement by the African-American artist. This course offers an historical and critical examination of African-American art from the nineteenth century to the present, with special emphasis on the effects of European and African art styles on the black artist in America.

25.272 Analysis of Comparative Slavery **4 Q.H.**

Slavery has had major psychological effects on the shaping of the black American experience, as well as on the experience of blacks throughout the world. An analysis of the sociological implications of slavery on group interrelations, social norms, and cultural aberrations covers several national versions of the slave system in Africa, Europe, the Caribbean, and North and South America.

25.273 Analysis of the Slavery System in America **4 Q.H.**

This course attempts a comprehensive survey of the realities of the slavery system in America, with focus on the impact of slavery on blacks, as well as on the society which perpetrated the system. Examination of slave narratives and

other historical documents will provide insights into the origin of the slavery system and the way it functioned until the Emancipation Proclamation.

25.274 Seminar: Black Political Leadership **4 Q.H.**

(Prereq. 25.246 or consent of instructor)

This course focuses on several contemporary black political leaders, examining the factors and social contexts which contributed to or thwarted their leadership. Students are expected to conduct extensive research on a particular black political leader and present a critical analysis of the impact of that leader on the black community.

25.278 Black History of Boston **4 Q.H.**

This course examines the social, economic, political, and educational history of Boston's black community in the nineteenth and twentieth centuries. The development of the black community and its institutions is a major focus, and students are encouraged to study the past in an attempt to understand the present and interpret the future. Research data include participant observation, oral history, interviews, and primary and secondary source materials.

25.279 Minorities, Ethnicity, and Human Rights **4 Q.H.**

The interrelationship between minorities, ethnicity and human rights is a complicated social and political question which concerns the policy maker at the local, state, and federal levels. This course assesses the effect of human rights issues on public policy and the difference these considerations make.

25.281 Survey of African-American Music **4 Q.H.**

Black music has evolved in fascinating ways over the past hundred years. Topics include the impact of African rhythm on black music, the New Orleans coalescence, regional development, ragtime, the emergence of large bands, the harmonic revolution of the 40s, bebop, the 1960s avant-garde, and subsequent developments. Some analysis of specific jazz phenomena is included.

25.283 Seminar: Creative Expression in Blues and Jazz **4 Q.H.**

Blues and jazz have been among the most far-reaching and original artistic expressions of blacks in America. The course touches on possible African sources of inspiration for the musical literature of blues and jazz; however, a more important focus is on blues and jazz as a reflection of African-American life and on the impact these musical forms have had on black self-image and position in American culture.

25.290-294 Directed Study **4 Q.H.**

Directed study offers the ambitious student the opportunity to pursue a special intellectual inter-

est not covered by the Departmental course offerings, and to work on this interest with the Departmental faculty member of his/her choice. The faculty member will closely supervise the project, and act as adviser for the duration of the quarter.

25.295-298 Junlor-Senior Honors

Program 4 Q.H.

For prerequisites and other details, see section on the Junlor-Senior Honors Program on page 5.

The following courses may be of interest to the student wishing to concentrate in African-American Studies. Descriptions for these courses may be found in the appropriate departmental listing.

- 21.145 Urban Society**
- 21.150 Race and Ethnic Relations**

- 21.270 Class, Power, and Social Change**
- 20.250 Political Anthropology**
- 20.255 Economic Anthropology**
- 20.259 Urban Anthropology**
- 22.132 Political Behavior**
- 22.133 Political Parties and Pressure Groups**
- 22.137 Civil Liberties**
- 22.171 Law and Society**
- 22.228 Government and Politics in Africa**
- 22.233 International Law**
- 22.242 The Politics of Revolution and Change**
- 22.245 The Politics and Policies of Developing Nations**
- 22.270 Political Theory**
- 22.278 Contemporary Political Thought**
- 26.101 Introduction to Philosophy I**
- 26.102 Introduction to Philosophy II**
- 26.155 Moral Philosophy**
- 36.120 Existentialism**
- 26.131 Social and Political Philosophy**

Philosophy and Religion

26.101 Introduction to Philosophy I 4 Q.H.

An examination of some of the central and persistent issues in philosophy, including theories of reality, theories of knowledge, the problem of evil, the problem of suffering, and problems in religion. Please note that not all sequences treat the same philosophical problems.

26.103 Introduction to Religion 4 Q.H.
(Formerly 26.183)

This course seeks to identify and appraise different ways of being religious: primitive, mystical, dogmatic, and ritual. Emphasis is placed upon appreciating the unique standpoint that each requires, how each sees the world in a radically different way, and how that leads to distinctive ways of life.

26.104 Understanding Religious Man 4 Q.H.
(Formerly 26.177)

This course examines several important explanations of the nature, origin, and present significance of religious experience, beliefs, and practices in the light of modern knowledge and attitudes.

26.110 Classical Greek Philosophy 4 Q.H.
(Prereq. 4 Q.H. philosophy)

An exploration of classical Greek philosophy, the course starts with a study/discussion of the roots of Western thought in the sixth century, B.C. and argues the reasons for our debt to these original thinkers who were concerned with explaining the principles of external nature and the problems of human knowledge and conduct. Central to understanding these problems is the study of Socrates and his adversaries, the Sophists, and his student, Aristotle. The course

also covers Roman philosophy, the Stoics, and the Sceptics who are a prelude to the early Christian philosophers of the first century, A.D. Throughout the course, attention is placed upon the interplay between the philosopher and the moral, social, and religious context in which his thought arises. Student participation in class discussion is very important to the course.

26.111 Modern Philosophy 4 Q.H.
(Prereq. 4 Q.H. philosophy)

The 100 years between 1650 and 1750, sometimes called "the century of genius," was a period in which philosophers reacted to the new scientific discoveries of Copernicus, Kepler, and Galileo. Out of this reaction came new ways of thinking about the nature of knowledge and the nature of the world itself. The course focuses on the development of the rationalist and empirical philosophies during this period, with emphasis on Descartes, Leibniz, Spinoza, Locke, Berkeley, and Hume.

26.115 Chinese Philosophy 4 Q.H.

This course offers a study of Chinese philosophy in the ancient period (until 221 B.C.). Emphasis is placed on Confucianism, Taoism, and the *I Ching*. Less emphasis will be placed on the Logicians, the Mohists, and the Legalists.

26.120 Existentialism 4 Q.H.
(Prereq. 4 Q.H. philosophy)

Existentialist philosophy is examined in its greatest representatives, such as Kierkegaard, Nietzsche, Dostoevski, Heidegger, Jaspers, and Camus, with major attention given to Jean-Paul Sartre and Maurice Merleau-Ponty. The focus of this course will be on central themes, including self-alienation, unauthenticity, authenticity and

existential experiences. Existential philosophy is examined in its historical, social and cultural relations, and in its influence on psychology, psychoanalysis, sociology, political science, and literature, both in Europe and in the United States.

26.121 Analytic Philosophy 4 Q.H.
(Prereq. 8 Q.H. philosophy)

The development of the analytic movement from its beginnings in the early works of Moore and Russell. Some treatment of Russell's logical atomism, the logical positivists, the thought of Ludwig Wittgenstein, and their widespread influence.

26.122 Freud, Skinner, and Their Critics 4 Q.H.
(Prereq. 4 Q.H. philosophy or consent)

The course provides an examination of fundamental themes and concepts of Freud's psychoanalysis and Skinner's psychology from a philosophical perspective, and criticisms of them from the point of view of reformed Freudians and existentialists. Selections include Freud, Jung, Adler, Karen Horney, Skinner, Koestler, Pearls, Sartre, Merleau-Ponty and Kovaly.

26.124 Philosophy of Psychology 4 Q.H.
(Prereq. 4 Q.H. philosophy or 4 Q.H. psychology or consent of instructor)

The course offers an examination of the philosophical and scientific foundations of behavioristic psychology, with emphasis on the acquisition and use of language. Discussion of alternative conceptions, e.g., Chomsky's and those arising from computer studies.

26.125 Philosophy of Mind 4 Q.H.
(Prereq. 4 Q.H. philosophy)

What is the relationship between mind and body? Is the mental merely a function of bodily process and behavior or does it somehow exist "over and above" the material? How are self-knowledge and knowledge of other minds achieved? What is the relationship between words and thoughts? This course, in part, seeks to show what puzzles and problems result from an honest attempt to answer these questions in a reasonable way. Classical sources, such as Descartes and Locke, and contemporary sources, such as Wittgenstein and Putnam, are examined. But the course also seeks to arrive at some *answers*—however tentative or provisional—to these questions. The student is constantly challenged to think and write well about these difficult subjects.

26.126 Philosophical Problems of Law and Justice 4 Q.H.

The course offers a consideration of philosophical issues concerning the law and its enforcement with focus on such areas as the nature of law, the enforcement of morality, the limits on legal interference with individuals, the justifica-

tion of punishment, and alternatives to punishment.

26.127 Philosophy of Language 4 Q.H.
(Prereq. Consent of instructor)

The course examines prospects for a theory of language, its syntax and semantics. Contrasts between theory of reference and theory of meaning. Are there universals of language? Relations between linguistics and psychology. Readings from Frege, Quine, Russell, Chomsky, and Fodor.

26.130 Aesthetics 4 Q.H.
(Prereq. 4 Q.H. philosophy)

This course offers an historical approach to aesthetics. Aesthetics is the philosophical analysis of concepts and the solution of problems that arise when one contemplates beautiful (or ugly) objects; it is also concerned with standards of value in judging art. Aesthetics asks the following questions: What features make objects beautiful (or ugly)? Are there aesthetic standards? What is the relation of works of art to nature? What is the nature of an aesthetic experience?

26.131 Social and Political Philosophy 4 Q.H.
(Prereq. 4 Q.H. philosophy)

What basis is there for a citizen to obey the laws of his state? What gives some people the right to rule over others? What are the limits on what a state can legitimately demand of its citizens? Should the state simply require persons not to harm one another? Should it control the economy and guarantee a particular standard of living for its citizens? These and other questions are dealt with in the context of recent philosophical debates about political and economic rights. Anarchism, libertarianism, socialism, and capitalism are among the doctrines studied. Readings include selections from Robert Nozick's *Anarchy, State and Utopia* and John Rawls's *A Theory of Justice*.

26.133 Philosophy of Science 4 Q.H.
(Prereq. 4 Q.H. philosophy)

Science is the dominant intellectual force of our culture. This course focuses on the nature of scientific method, scientific theories, and scientific explanations. A central question is: Why is science thought to provide the most reliable account of the nature of reality? Various theories about the nature and reliability of science are considered.

26.134 Philosophy of Religion 4 Q.H.
(Prereq. 4 Q.H. religion)

The basic question in this course is "Does God exist?" The course examines several major arguments affirming and criticizing the notion of God's existence. A central problem in recent philosophy of religion is whether or not it makes any sense to speak of the truth (or falsity) of religious belief, as well as the implications an answer to that issue has for religious life; this

topic will be examined in the latter half of the course. In addition, each student is required to write an essay on the basic question from any point of view relevant to the issues discussed in the course.

26.135 Philosophy of Human Nature 4 Q.H.

The course offers a philosophical inquiry into the theories of man, man's dimensions, and human nature. The question of the existence of human nature is thoroughly examined. Special interest will be given to contemporary theories of man and self-alienation, and their influence in social sciences. Selected readings from Descartes, Hobbes, Hegel, Marx, Kierkegaard, Maritain, Freud, Skinner, Fromm, and Frankel.

26.136 Existentialism and Literature 4 Q.H.

After World Wars I and II, existentialist philosophy inspired the literature of "extreme situations." This course examines human extreme experiences in existentialist philosophy and novels. Some of the major themes are loneliness, self-alienation, social pressures, conformity, absurdity, anxiety, social, political and moral crises, nothingness, and death. Selected readings will include the most influential European and American authors.

26.137 Philosophy and Literature 4 Q.H.

The purpose of this course is to provide the student the opportunity to learn to recognize, appreciate, and criticize philosophical themes in literature. The readings typically include acknowledged classics by philosophical authors such as Voltaire, Dostoevski, and Sartre, as well as such popular contemporary authors as Vonnegut, Barth, and Pynchon. There are also some readings from more straightforward philosophical sources. Philosophical topics dealt with include the meaning of life, the human condition, depersonalization, alienation, human freedom, questions of value, responsibility, rationality, and personal identity. Religious, nihilistic, existential, and other points of view are explored.

26.144 Technology and Human Values 4 Q.H.

The course examines the changing values of the modern, technologically advanced world. Our study attempts to increase our understanding of the supposed breach between the literary and scientific cultures, the diverse approaches toward their reconciliation, and the human dimensions of science and technology. Other relevant topics are the neutrality of technology with respect to good or evil uses, technology as an instrument for human liberation, and the issue of proper and effective modes of controlling technology in today's world. Pirsig's widely read paperback, *Zen and the Art of Motorcycle Maintenance*, is studied, as is Lynn White's *Dynamo and Virgin Reconsidered*. Other important writers to be considered include Kurt

Baler, J. Bronowski, Barry Commoner, Erich Fromm, Karl Marx, and C.P. Snow.

26.145 Technology and the Individual 4 Q.H.

This introductory course attempts to awaken some philosophical reflectiveness regarding the potential benefits and threats to individuals that derive from technological change. The course explores and discusses such issues as the relation of technology to human freedom and privacy; the effects of "future shock" upon the individual; the possibility of the tyranny of a technological elite; and the prospects for the transformation of humankind. Some writers see technology as the salvation of humanity; others see technology leading to dehumanization, a decrease of freedom, and a developing sense of alienation; still others see the extinction of "human nature" as we once knew it. Where is the truth in all of this? What are the social, psychological, and philosophical meanings and consequences of technological change in our day and in the future? Some of the major readings for the course are from Alvin Toffler's *Future Shock*, Herbert Marcuse's *One Dimensional Man*, Jacques Ellul's important criticism, *The Technological Society*, and Lewis Mumford's *The Transformation of Man*.

26.148 The Meaning of Life 4 Q.H.

The course offers an examination of selected philosophical problems of human existence in the contemporary world, with major emphasis on man's search for his identity and self-fulfillment. Selected problems are discussed, such as freedom, death, sexuality, alienation, becoming a person, and peak experiences. The course includes readings from Kierkegaard, Heidegger, Sartre, Camus, Maslow, Allport, Frankel, Rogers, and Rolio May.

26.150 Introduction to Logic 4 Q.H.

The course offers a study of Aristotelian logic, covering basic concepts of logic, the evaluation of arguments, and the informal fallacies. Some of the basic concepts covered are argument, difference between deduction and induction, validity and truth. The informal fallacies deal with the common errors in argumentation.

The course provides an elementary study of deductive reasoning, with emphasis on propositional and Aristotelian logic and practice in constructing, analyzing, and evaluating everyday arguments.

26.151 Symbolic Logic 4 Q.H.

The course offers a presentation of the syntax and semantics of propositional logic and first-order quantification theory. Relations between these systems and natural language are considered. The course covers analysis of the notion of derivation within a system, and the notion of logical consequences, and practice in analyzing logical structure in natural language sentences.

26.152 Theory of Knowledge 4 Q.H.
(Prereq. 4 Q.H. philosophy or consent of instructor)

This is an introduction to epistemology or theory of knowledge, which asks the following questions: What is knowledge? Is knowledge (or even certainty) attainable? What are the limitations of human knowledge? How is knowledge—If we have it—acquired? What roles do reason and experience play in the attempt to attain knowledge?

This course uses both classical (René Descartes and David Hume) and contemporary sources (Bertrand Russell and others). Various theories of knowledge, such as empiricism, rationalism, and scepticism, are examined and criticized. The student is encouraged to form at least tentative opinions on these issues.

26.153 Metaphysics 4 Q.H.
(Prereq. 8 Q.H. philosophy)

The course offers a consideration of central problems and theories concerning the nature of reality, with special attention to such areas as the relation between mind and matter, free will and determinism, and criteria of existence.

26.155 Moral Philosophy 4 Q.H.
(Prereq. 4 Q.H. philosophy or religion or consent of instructor)

What sorts of things are good and bad? What actions are right and wrong? These two basic questions are explored. The course covers major classical conceptions of ancient Greece and Rome, their replacement by the Western religious ethic, its modification and rejection in the early modern period, and the emergence of modern versions of traditional conceptions of the good life, with reflections on the nature of ethical inquiry itself as a legitimate study.

26.159 Ethics: East and West 4 Q.H.
Is there a *best* way to live? Is there a way a human being *should* live? In Eastern and Western philosophy there are claims that a way of life exists which leads to happiness, power, and wisdom. This course explores this claim by studying the thought of such philosophers as Socrates, Buddha, Plato, Aristotle, Lao Tzu, Epictetus, Marcus Aurelius, Aquinas, and Spinoza, as well as by studying some of the classical Hindu and Buddhist texts.

26.162 The Ethics of Human and Animal Experimentation 4 Q.H.

This course explores the conflicts which arise between the value of free scientific inquiry on the one hand, and the rights, vulnerabilities and sufferings of human and animal subjects on the other. Topics include traditional issues involving informed consent, voluntariness, coercion, experimental design, risk-benefit analyses, institutional review boards, and professional guidelines, as well as such less traditional

issues as the competing conceptions of progress and whether we have obligations to non-human animals.

26.163 Ethical Issues of Taxation 4 Q.H.

Although we tend to believe that persons have a right to their own labor, a right to their own property, and a right to exchange their labor or property for the labor or property of other consenting adults, it seems that income taxes, property taxes, and sales taxes violate these rights. This course explores two basic questions: Is *any* taxation morally justified? Are there moral grounds for choosing among taxation policies? Specific topics include competing conceptions of private property; the "progressive versus regressive taxation" controversy; the alleged problems with interpersonal utility comparisons; and such questions involving the distribution of tax monies as, e.g., whether those who have more than they need have any moral obligation to provide for the needs of the poor.

26.165 Medicine, Religion, and the Healers' Art 4 Q.H.

This course explores aspects of the historical, religious, and cultural context for contemporary alternatives in health care, beginning with an examination of several examples of traditional healing practices, and their accompanying religious and philosophical views about human life. Course material explores the break-up of this "holistic" tradition in two frames of reference: the ascendancy of scientific rationalism over religion, and the takeover, by male-dominated professions, of healing functions that society has traditionally assigned to women (e.g., the rise of obstetrics and the suppression of midwifery). Special attention is given to major women healers of the 19th century. Course includes a look at some contemporary efforts at reintegration of scientific and traditional values in the modern health care system. Students will also meet and interact with patients and healers active in the modern "holistic health" movement.

26.168 Moral Problems in Medicine 4 Q.H.

This course examines two fundamental ethical systems, one of which is grounded on the dignity of the person, the other on the intrinsic value of happiness. The course then explores the difficult issues of euthanasia, suicide, paternalism, medical experimentation, the patient's right to consent to any therapeutic intervention, and the concept of death with dignity. After studying these and related moral issues, the larger economic and policy issues of justice, some of which are current in political debates (for example: Is there a right to health care?) are examined.

It is hoped that this course will encourage the student to become more sensitive to moral

problems as they arise in medical settings, better able to deal with these troublesome issues, and perhaps more courageous in facing them if that becomes necessary.

The course also offers an investigation into the questions of abortion, euthanasia, infanticide, genetic counseling, psychosurgery, and human experimentation from the standpoint of both philosophical ethics, such as the theory which states that the ends justify the means; and religious ethics, such as the Natural Law theory of the Roman Catholic Church.

26.170 Western Religions 4 Q.H.

Western religion is grounded in the experience of God's presence, which transcends and transfigures the life of the individual and the community. This encounter is the essence of Judaism, Christianity, and Islam. Drawing on autobiography and biography, this course delves into the personal religious quests of such major religious thinkers as St. Augustine, St. Theresa, Martin Luther, Elie Wiesel, Richard Rubenstein, Dietrich Bonhoeffer, and Mohammed.

26.171 Eastern Religions 4 Q.H.

Eastern religions appear to be fundamentally different from the orthodox religions of the West. Not only do Hinduism, Buddhism, and Taoism promise a solution to the problem of suffering (compare the common Christian and Jewish attitudes), but most of these religions do not have a central God Personality, and some explicitly reject such a concept as meaningless, or at least as irrelevant to leading a religious life. Central to these views is a way of being in the world which emphasizes meditation, skillful and compassionate action, and a direct awareness of the fundamental nature of reality. The course first tries to make sense of the difficult notion that the way we perceive reality may be illusory. It then examines Theravada Buddhism, a religion that rests on the insights that everything is impermanent and that it is possible to live fully in the present without any suffering. From Theravada Buddhism, the course turns to Mahayana Buddhism, and then to Taoism, a subtle view that emphasizes the "flow" of life and that "the way to do is to be." Next, the most explicit of the mystical religions, the Hinduism of the *Upanishads*, is examined. As part of the exploration of this form of Hinduism, students are given the opportunity to intellectually examine and also practice a few methods of meditation. In addition, the course investigates the devotional aspect of Hinduism as expressed in the *Bhagavad Gita*.

26.173 Cults and Sects 4 Q.H.

This course offers an examination of the varieties of religious experience from the perspectives of sociology and psychology of religion. This course focuses on such cultic and sectarian groups as Christian Science, the

American Shakers, the Unification Church, the Hare Krishna movement, and the Black Muslims. The primary purpose of this course is to provide the student the opportunity to acquire critical investigative tools with which to analyze different religious expressions.

26.174 Islam 4 Q.H.

The course explores the history of Islam, its conflicts with the West in past and present, Islamic beliefs, the future of Islam as a world religion, and relations of Islam with Christianity and Judaism. Since Islamic faith touches upon social, political, and legal issues, the course is concerned with them as well as with the more familiar religious and theological questions.

26.176 Understanding the Bible 4 Q.H.

This course introduces students to the Old and New Testaments, so that they may enter into a dialogue with the Bible, understanding not only what it says, but why it is said that way. To do this, discussion focuses on the Bible's social, political, and cultural backgrounds.

26.178 Religion in a Social Context 4 Q.H.

This course offers an exploration of the social forms of religion. The structures and roles of the church, synagogue, and sect are described and critically evaluated. In addition, emphasis is given to their function, with reference to general social structure, process, and reform.

26.182 Religion in the Age of Science 4 Q.H.

This course provides an examination of the problems posed by the interaction between religion and the natural and social sciences. Representative selections from Hume, Darwin, Marx, Freud, Erickson, and Troeltsch are used to interact with selections from Bultmann, Teilhard de Chardin, Niebuhr, Bonhoeffer, and Tillich.

26.187 The Meaning of Death 4 Q.H.

This course offers an inquiry into different philosophical and religious perspectives on death and life after death, including an examination of some powerful contemporary accounts of personal confrontation with death, along with investigations into attitudes toward death in other traditions (e.g., Hinduism and Buddhism). In addition, the course explores responses to the mass death of the Holocaust in Germany, and theories about life after death such as those discussed in Raymond Moody's *Life After Life* and Ian Stevenson's *Reincarnation*.

26.186 The Occult as Religion 4 Q.H.

The course focuses on the history, aims, and methods of such esoteric or mystic doctrines as astrology, numerology, magic, demonism, and divination, and investigates the structural similarities of these religious forms to those of the dominant religious traditions of the world.

26.189 Philosophy of Death, Grief, and Dying 4 Q.H.

This course offers an exploration of fears about

death and dying and of the grieving process, and an examination of the processes people sometimes experience while dying. In addition, the course examines current practices of caring for the dying and of coping with bereavement, questioning whether these practices are, in fact, healthy, helpful, and/or ethical. Other relevant ethical issues to be examined include euthanasia, truth-telling with the dying, suicide, and paternalism. The course will close with the question of the meaning of life, given the fact that we must die.

26.190, 191, 192 Honors I, II, and III 4 Q.H.

Students interested in taking Junior-Senior Honors courses should confer with Department Chairperson. Arrangements are made between the student and a member of the faculty. Each Honors course carries a value of 4 Q.H. credit. *Staffing:* by arrangement.

26.195 Directed Studies 4 Q.H.

(Prereq. By arrangement between student and faculty.)

Those interested in the Directed Studies program should meet with Department Chairperson. *Staffing:* by arrangement.

26.251 Advanced Logic 4 Q.H.

(Prereq. 26.151)

The course offers a study of the major results in the meta-theory of first-order logic. Consistency,

completeness and decidability. Discussion of the general notion of an effectively computable process, Church's thesis, and the existence of unsolvable problems.

26.267 Seminar in Nietzsche 4 Q.H.

(Prereq. 8 Q.H. of philosophy or consent of instructor)

26.276 Mysticism: East and West 4 Q.H.

(Prereq. 26.104, or consent of instructor)

The course offers an inquiry into mystical experience through a comparative study of the writings of Christian, Buddhist, and Hindu mystics, and secondary interpretive sources. Areas taken up are the potential oneness of man and God, the conflict of mystics with traditional forms of religion, and the possibility of a common, cross-cultural basis for mysticism.

26.290 Issues in Medical Ethics 4 Q.H.

(Prereq. permission of instructor)

This course focuses on issues in medical ethics, especially as they are likely to arise in a clinical setting. Course begins with exploration of the two basic systems of ethical theory and then concentrates on their application in cases exemplifying the issues of euthanasia, paternalism, experimentation, informed consent, quality of life, professional responsibility, right to health care, truth telling, genetic control, abortion, and the allocation of scarce medical resources.

Art

27.105 Introduction to Fiberart 4 Q.H.

This course is an introduction to fiberart techniques, including simple looms, with emphasis on designing and creating two and three dimensional wall hangings, sculpture, and functional works.

27.113 Creative Drawing 4 Q.H.

The course focus is on basic drawing in pen and ink, pencil, charcoal, brush, and related media. Course includes fundamentals of form, volume, and texture in drawing.

27.115 Basic Painting 4 Q.H.

This is an introductory studio course in the fundamental techniques of painting. Formal problems in the study of color, light, space systems, form, and composition establish the foundation for more individual creative expression. Critiques and slide lectures are used as needed.

27.118 History of Art I 4 Q.H.

The course provides a survey of Western art from prehistoric times to the Renaissance.

27.119 History of Art II 4 Q.H.

The course provides a survey of Western art from the Renaissance to the twentieth century.

27.121 Contemporary Directions in Cinema 4 Q.H.

The course offers a comparative study of selected films by major contemporary directors. Film screenings, discussions, assigned readings, and lectures.

27.129 Photo Silkscreen 4 Q.H.*

The course focuses on creative use of the photo silkscreen process, developing ideas visually through a combination of photography and hand-cut stencils. Emphasis is on organizing relationships between the forms in order to communicate the idea effectively. No previous knowledge of photography or silkscreen necessary.

27.131 Ancient Art 4 Q.H.

The course offers a concentrated study of art from prehistoric times to Greek civilization, including Egyptian, Mesopotamian, and Aegean art.

27.136 Classical Art 4 Q.H.

The course offers a concentrated study of Greek and Roman sculpture, architecture, and painting.

27.137 French Painting 4 Q.H.

The course examines French painting of the

nineteenth century, focusing on Romanticism, Realism, Impressionism, and their cultural implications.

27.139 Medieval Painting and Sculpture 4 Q.H.
The course focuses on Romanesque and Gothic painting and sculpture from the tenth to the fifteenth centuries.

27.143 Mexican Art 4 Q.H.
The course offers a concentrated study of Pre-Columbian art from the Archaic and Classical periods to the present.

27.144 Latin American Art 4 Q.H.
The course focuses on the arts of architecture, sculpture, and painting of various countries of Latin America except Mexico, from Pre-Columbian times to the twentieth century.

27.150 History of Photography 4 Q.H.
The course offers a study of development of photography from early 19th century to present.

27.151 Modern Painting 4 Q.H.
The course provides a survey of 20th century painting, including major schools such as Impressionism, Cubism, Surrealism, and Expressionism. Course includes visits to museum collections and contemporary art galleries.

27.152 Introduction to Art 4 Q.H.
The course offers a basic introduction to the characteristics of the visual arts, including painting, sculpture, graphic arts, and architecture. Various examples of works of art are studied as an introduction to style and technique. Course includes visits to museum collections and contemporary art galleries.

27.161 American Architecture 4 Q.H.
This course provides a survey of major developments in American architecture from colonial times to the present, with emphasis on stylistic developments and influences affecting architectural directions in America.

27.162 American Sculpture & Painting 4 Q.H.
A survey of major developments in American sculpture and painting from colonial times to the present, this course emphasizes stylistic considerations and influences affecting the development of these art forms.

27.183 The American Film 4 Q.H.*
An historical survey of the unique rise of the American film and its influence on a burgeoning new international art form. Key films representing major aesthetic or technical developments from the late nineteenth century to the present are screened weekly and discussed.

27.173 Modern Architecture and the City 4 Q.H.
American and European architecture and city planning from 1850 to 1920, with special emphasis on such cities as Boston, New York, Chicago, London, and Paris.

27.175 Late Nineteenth-Century American Architecture 4 Q.H.
The course offers a survey of the Stick and Shingle Architectural Styles, as well as more general developments. Introductory lectures are followed by student presentations on selected topics.

27.176 Contemporary Architecture and the City 4 Q.H.
The course offers a study of the great figures and chief movements of American and European architecture and city planning of the twentieth century.

27.177 Introduction to Architecture 4 Q.H.
The course offers a survey of the stylistic characteristics of architecture from ancient periods to the present.

27.178 Technology, Architecture and the City 4 Q.H.
The course offers an examination of the role of technology and architecture in shaping the built environment of the American city, with special emphasis on Chicago, New York, and Boston. The course also investigates the effects of the physical planning, especially urban renewal and the recycling of older buildings.

27.183 Seminar in Modern Art and Architecture 4 Q.H.
(Prereq. One course in art history since the Renaissance)
The course focuses on selected topics in modern art and architecture.

27.184 Graphic Arts I—Woodcutting 4 Q.H.
This course in creative printmaking utilizes the medium of woodcutting.

27.185 Graphic Arts II—Silkscreen 4 Q.H.*
This course in creative printmaking utilizes the medium of silkscreen.

27.186 Documentary Film 4 Q.H.*
The course offers a study of the aesthetics and tradition of the documentary film, with a major emphasis on contemporary directions.

27.189 Photography 4 Q.H.*
This course offers an introduction to theory, practice, and techniques of photography. Emphasis on aesthetic, creative, technical, professional, and commercial aspects of making a photographic image.

27.190 Filmmaking Workshop 4 Q.H.
This is an introductory course in the creative use of the film medium. Emphasis will be placed on weekly lab assignments designed to develop skills in the fundamental techniques of filmmaking. A final film project expressing an original idea in film form will be required of each student. Film screenings, lectures, and critiques. Equipment will be provided by the department.

27.191 Renaissance Art and Architecture 4 Q.H.
The course focuses on Italian painting, sculpture, and architecture of the fifteenth and sixteenth centuries, with special reference to the historical and social forces that shaped them.

27.193 Arts of the Old West 4 Q.H.
The course offers a survey of the arts of the early settlers of the American West, including Indians and frontiersmen, revealed through the building, painting, photography, and films of the Old West.

27.194 Life Drawing 4 Q.H.
This is a basic studio course in the study of the human figure. Exploration of anatomy, technique, and style will be emphasized in weekly drawing sessions utilizing the model. Critiques and slide lectures as needed. No lab fee.

27.195 Animation Workshop 4 Q.H.
An introductory course in the creative possibilities of the animated film. Weekly lab assignments and a final project will acquaint students with the various animation techniques and the creative advantage of each. Film screenings, lectures, and critiques. Equipment supplied by the department. No lab fee.

27.197 Art and Society 4 Q.H.
The course offers an examination of the way in which societal forces and political ideologies are expressed in the visual arts, especially in painting and architecture. The course combines a broad overview of a few significant historical periods with a more focused concentration on the past two hundred years.

27.198 History of Film 4 Q.H.*
This course offers an introductory historical

survey of the development of film as an art form from the late nineteenth century handcolored silent films to the contemporary international movement. Lectures, screenings, and discussions.

27.199 Intermediate Photography Workshop 4 Q.H.
(Prereq. 27.189 or equiv.)

A continuation of Introduction to Photography, this course places special emphasis on developing a creative, individual approach to the photographic image. Lectures on photographic trends in photography and lab demonstrations of advanced darkroom techniques are complemented by weekly critiques of student work in progress.

27.201 Architecture and the City 4 Q.H.
This course provides a selective examination of Western architecture in the context of the urban environments that produced it. Special attention is paid to the cultural and social forces which shaped this architecture of the cities.

27.295, 27.296, 27.297 Junior-Senior Honors Program (each) 4 Q.H.
For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

27.291, 27.292, 27.293 Directed Study (each) 4 Q.H.

These courses offer independent work under the direction of members of the Department on a chosen topic. Limited to qualified junior and senior students majoring in art history, with approval of the Department.

Music

28.100 Music I 4 Q.H.
This course offers an introduction to selected works of our musical heritage from earliest to contemporary styles. It is primarily a survey and listening course, with emphasis on styles, basic theory, forms, and the historical, social, and artistic periods which these works represent.

28.101 Music II 4 Q.H.
(Prereq. 28.100, 28.102, or 28.106)
This is an in-depth continuation of 28.100, aimed at the further development of appreciation and understanding of selected works of our musical heritage. The course consists of a detailed study of these works and their relationships to the artistic milieu in which they were created.

28.102 Learning to Read and Write Music 4 Q.H.
This is a basic course for those who want to learn how to read a score, or how to write a tune. Students have the opportunity to learn to read music at sight, and to compose in some of the basic forms (song, theme, and variation, etc.).

28.106 Theory I, Tonal Techniques A 4 Q.H.
(Prereq. 28.133)

The course focuses on ear training, sight singing, and dictation. Elementary harmony including dominant seventh chords and non-harmonic tones. Elementary music analysis.

28.107 Theory II, Tonal Techniques B 4 Q.H.
(Prereq. 28.106)

The course concentrates on intermediate ear training, sight singing, and dictation. Intermediate harmony and musical analysis.

28.112 Music of the Baroque 4 Q.H.
The course focuses on the period of the emergence of the orchestra, the chorus, and the virtuoso performer; the development of the oratorio, opera, concerto, and symphony in the works of such composers as Monteverdi, Corelli, Handel, Vivaldi, and J. S. Bach.

28.113 Bach 4 Q.H.
This course studies the genius who summed up the Baroque era, a man whose every note reflected his profoundly humanistic approach to religion. Works include large choral masterpieces such as the *St. Matthew Passion*, the *Brandenburg Concertos*, and *Well-Tempered Clavier* and the *Suites*.

28.115 Music of the Classical Era 4 Q.H.
That which is classical concentrates on lasting values like form, balance, and perfection of detail. Classical music, therefore, has values which make it meaningful in any period of history. Classicism reached its peak in the latter part of the eighteenth century with Mozart and Haydn, whose vocal and instrumental works will be studied in detail.

28.117 Medieval and Renaissance 4 Q.H.
The course examines the development of sacred and secular monophony, vocal and instrumental works, and polyphonic music from its beginning to about 1600.

28.119 Music of the Avant-Garde 4 Q.H.
The avant-garde in music; total serialism, musique concrete, electronic music, chance music. The avant-garde in jazz, folk, rock, and pop.

28.120 Survey of Music History 4 Q.H.
The course provides a chronological view of Western music and the men who shaped its course. Selected works which demonstrate the trends in each period are listened to and discussed with a view to style, continuity, and change. Among the composers whose works are studied are Machaut, Josquin, Byrd, Bach, Mozart, Beethoven, Berlioz, Wagner, Mahler, and Stravinsky.

28.123 Music of the Romantic Era 4 Q.H.
The course focuses on romantic realism and idealism in the nineteenth century. Emphasis is placed on historical, nationalistic, and literary influences in music. Composers studied include: Beethoven, Schumann, Schubert, Berlioz, Liszt, Chopin, Verdi, Wagner, Brahms, Tchaikovsky, and Mahler.

28.124 Traditional Folk Music of the Western World 4 Q.H.
This course focuses on the folk music of Europe, Africa, North and South America, Asia, and Australia. The ethnic music, dances, traditions, epics, and sagas that have influenced Western and Eastern cultures.

28.125 Great Choral Literature 4 Q.H.
This course provides an analysis of sacred and secular choral literature from medieval to contemporary times.

28.126 Music as a Means of Social Expression 4 Q.H.
The course deals with the artist's involvement with recurring social themes of man's view of himself, his search for brotherhood, his relation to minority groups, and his sexual relationships. Painting and literary works are used in addition to works by Beethoven, Schoenberg, Britten, and jazz composers.

28.128 Post Romanticism in Music 4 Q.H.
This course focuses on the consummation of nineteenth-century Romanticism and the fore-runners of twentieth-century Expressionism, as seen in the works of Mahler, Bruckner, Strauss, and others.

28.133 Fundamentals of Music Theory 4 Q.H.
To help prepare the student for a study of music theory, this course deals with the basics of musical notation and ear training. The student will have the opportunity to learn to take simple melodic and rhythmic dictation, to recognize and build scales, intervals, and triads, and to sing at sight a simple diatonic melody.

28.134 Theory III, Tonal Techniques C 4 Q.H.
(Prereq. 28.107)

Topics include principles of harmonization, including modulation and altered chords, realization of figured bass, introduction to counterpoint. Some original writing. Advanced ear training.

28.135 Music of the U.S.A. 4 Q.H.
This course examines American music from the time of Puritan psalm singing to the present, including folk music of ethnic origin, concert music, ragtime, jazz, and contemporary styles.

28.136 Music in Popular Culture 4 Q.H.
This course emphasizes music of the twentieth century, especially the last twenty years. Thought is given to various subcultures, as seen in folk, jazz, rock, and soul. Reference is made to popular music of other countries.

28.137 Masterworks of Musical Literature 4 Q.H.
(Prereq. Concurrent membership in a musical ensemble)

This course offers an analysis of a small number of musical masterpieces covering a diverse range of styles within the "Western" tradition. Aspects of phrasing, harmony, harmonic rhythm, orchestration, and rhythm are analyzed. Effort will be made to coordinate subject matter with concurrent performances in the Boston area.

28.138 Nationalism in Music 4 Q.H.
This course focuses on music in the service of the emerging states. Among the composers

studied are the Russian Five, Smetana and Dvorak of Bohemia, Sibelius of Finland, Grieg of Norway, Gade of Sweden, Liszt and Bartok of Hungary, Gottschalk, and MacDowell and Ives of the United States.

28.140 Mozart **4 Q.H.**
Mozart's musical development from child prodigy to mature artist is traced from personal letters and biographies. Many of his major works, including opera, symphonies, concertos, and chamber music, are analyzed in detail.

28.141 Twentieth-Century Music: Debussy to Schoenberg **4 Q.H.**
This course focuses on the developments in music from 1900 to mid-century. Topics include impressionism, expressionism, neoclassicism, postromanticism, and neorationalism.

28.142 Stravinsky **4 Q.H.**
This course focuses on Stravinsky: the man who ushered in the twentieth century in music and lived to become a classic. His life and works: *Le Sacre du Printemps*, *Petrushka*, *Symphony of Psalms* and more recent works are given detailed attention. His contributions to twentieth-century style—neoclassicism, pandiatonicism, additive style—are analyzed and his strong influence on other composers is noted.

28.144 Debussy and the Music of Paris **4 Q.H.**
Claude Debussy, impressionist in sound, composed music that marked the turning point toward modern trends. Course covers much of his music for piano, orchestra and opera, including *Pour le Piano Suite*, *Suite Bergamasque*, *Images for Piano and for Orchestra*, *Nocturnes*, *La Mer*, and the opera *Pelleas and Melisande*. The related music of Satie, Ravel, Faure, and others.

28.145 Beethoven **4 Q.H.**
The course provides an analysis of the complex personality and art of this major figure; his relation to the turbulent times in which he lived; his role in classical and romantic music.

28.147 Music of the Middle East **4 Q.H.**
The course introduces the music of selected Near Eastern and Arab cultures, such as Persian in the East and Ethiopic and Berber in Africa, as well as the traditional instruments of the areas. The cantillation styles and practices of various chants of the Hebrew, Christian and Islamic traditions are also included.

28.148 Rock Music **4 Q.H.**
This course focuses on the history of rock music from its origins in American blues, through the popular styles of the 1950s, through the political styles of the 1960s, and through the diverse styles of the 1970s, with musical analysis of examples of the most complex rock styles. Special studies of rock styles in the context of socio-political conditions are included. Students

will be required to attend rock performances in the Boston area.

28.150 Music in Concert **4 Q.H.**
This music appreciation course is designed to increase the listener's aesthetic pleasure. Students have the opportunity to develop musical understanding through the study of that music which is performed today in concerts by major symphony orchestras of the U.S. and the world. Study materials are selected from actual symphony concert programs and include critical and analytical comments by some of the foremost critics and scholars. To make this course accessible to the uninitiated listener, the course is conducted in nontechnical language.

28.160 The Symphony **4 Q.H.**
This course offers a study of the symphony as the major genre in the classical, romantic, and contemporary periods. Works by Haydn, Mozart, Beethoven, Schumann, Tchaikovsky, Brahms, Sibelius, Prokofiev, and others are studied.

28.180 Introduction to Opera **4 Q.H.**
This course offers an analysis of opera as a dramatic form. Aria, recitative, ensemble, and other basic elements of opera are isolated and discussed. Numbers opera, music drama, and singspiel are some of the types of opera considered. Composers whose works are analyzed include Mozart, Wagner, Verdi, and Puccini.

28.181 Contemporary Opera **4 Q.H.**
Almost every composer, including Schoenberg, Berg, Bartok, Stravinsky, Hindemith, and Poulenc, has contributed to the opera repertory, thus illustrating twentieth-century style. Among the works studied are: *Wozzeck*, *The Rake's Progress*, *Dialogue of the Carmelites*, and *Bluebeard's Castle*.

28.182 Wagner's Ring Cycle **4 Q.H.**
The course offers an in-depth study of Wagner's cycle of music drama; *Das Rheingold*, *Walkure*, *Siegfried*, *Gotterdammerung*. Wagner's compositional techniques (e.g., the use of leitmotif and musical metaphor) are examined in detail.

28.200 Jazz **4 Q.H.**
The course focuses on jazz from its origins in New Orleans to the avant-garde experiments of today. The rhythmic, harmonic, instrumental, and stylistic characteristics of jazz are analyzed. Attention is given to the works of creative jazz artists such as Armstrong, Beiderbecke, Parker, Ellington, and Coltrane.

28.201 The New Jazz **4 Q.H.**
The course offers an in-depth study of various recorded works of important jazz performers/composers with respect to their works as creative artists: Armstrong, Beiderbecke, Ellington, Coltrane, Miles Davis, etc. The study is not chronological but deals with the dynamics of artistic growth and change. Special attention is given to the developments of the last decade:

third stream, free jazz, Eastern influences, electronic instruments, etc.

28.202 Black Artists in Music 4 Q.H.

The course offers a study of the contributions of black composers and performers to the world of music.

28.215 Recorder Workshop 4 Q.H.

The course focuses on beginning recorder technique and the development of sight-reading ability. Students have the opportunity to learn music theory through application in class performance. Simple duos, trios, and quartets will be used to help develop ensemble skills.

28.230 Musical Performance I 1 Q.H.

(Prereq. Audition or permission of instructor)

The course includes participation in rehearsals and public performances and/or research, composition, arranging, conducting, solo and ensemble activity, etc., with the Chamber Orchestra, the Early Music Players, the N.U. Chorus, the N.U. Bands, or other ensembles, under the supervision and coaching of a faculty member of the Music Department. The student's progress will be evaluated at the end of the quarter by audition or otherwise.

28.231 Musical Performance II 1 Q.H.

28.232 Musical Performance III 1 Q.H.

28.233 Musical Performance IV 1 Q.H.

(Continuations of 28.230)

28.240 Piano Class I 4 Q.H.

This is an introductory course in piano designed for adults who may have had no previous study in music. The course combines learning to read music with improvisation and accompaniment of simple popular tunes. Some theory is introduced to clarify the structure of pieces studied in class.

28.241 Piano Class II 4 Q.H.

(Prereq. 28.240)

This course is a continuation of the skills developed in Piano I, with emphasis on increasing students' flexibility at the keyboard through study of scales, transposition, and modulation. Repertoire includes works by Bach, Bartok, and the Beatles.

28.250 Music as a Listening Experience 4 Q.H.

This introduction-to-music course is listening-oriented and has been designed to provide tools for the aural appreciation of music. No previous musical knowledge is required or assumed, and studies deal directly with compositions selected from the masterpieces of music. Organized according to the tenets of P.S.I. (Personalized System of Instruction), the course allows the student to proceed at his or her own pace under the constant guidance and supervision of the instructor. Grades are determined by the number of units completed, and peer-tutor assistance is provided.

28.261 Music Therapy 4 Q.H.

The course examines the application of music as

a therapeutic vehicle. The use of music to release suppressed emotions and to encourage self-expression in psychiatric patients; to treat people with speech disorders, facial palsy, and other disorders. Music therapy is currently being considered as a supplemental vehicle to shock and other treatments. Music therapy is a modern approach to supplemental health services.

28.262 Music Therapy II 4 Q.H.

(Prereq. 28.261)

The course examines the etiologies, characteristics and applications of music therapy with the physically handicapped, hearing impaired, visually impaired, learning disabled, emotionally disturbed, speech/language impaired, and geriatric populations in 1-1 and group settings. In addition, improvisations and appropriate music materials for the nonmusician, and adapted instrument designs tailored to each disability are studied; and the correlation of music and movement is explored. Comparison of MT approaches (Bony, Levin, Nordoff & Robbins, et. al.) and contributions of Orff, Kodaly & Dalcroze; and discussion of assessment and accountability are included. Field trips to MT sites in and around Boston.

28.270 Strings I 4 Q.H.

The course provides an examination of fundamentals of instrumentation and orchestration, traditional string instrument class approaches including Bornoff and Herfurth, and orchestra development. Concentration upon the violin and viola.

28.271 Strings II 4 Q.H.

(Prereq. 28.270)

Particular attention is given to playing and teaching the cello and the contrabass with study of the Suzuki approach. Opportunity is provided to examine instrumentation, fundamentals of conducting, and the development of string instrument classes and orchestras.

28.272 Woodwind Instruments I 4 Q.H.

Concentration is on playing and teaching the flute, clarinet, and saxophone. Principles of arranging, orchestrating, and conducting woodwind classes, orchestras, and wind ensembles.

28.273 Woodwind Instruments II 4 Q.H.

Focus is on playing and teaching the oboe and bassoon, together with arranging and conducting for single/double-reeds, woodwind ensemble, orchestra, and wind ensemble.

28.274 Brass Instruments I 4 Q.H.

Attention is given to the playing and teaching of the trumpet and trombone, and a study is made of the development of conducting and arranging skills for brass classes, orchestras, and wind ensembles.

28.275 Brass Instruments II 4 Q.H.

The French horn, the baritone horn, and the tuba are the focus of playing and teaching. The development of conducting skills and orchestra-

tion approaches for brass classes, orchestras, and wind ensembles is also included.

28.277 Voice Class 4 Q.H.
The courses focuses on the basics of proper vocal production through group instruction. Course covers a body of vocal literature spanning four centuries. Enrollment limited to 16 students.

28.278 Organizing and Developing Instrumental Programs 4 Q.H.
The course offers an examination of Suzuki, Bornoff, Herfurth, Prescott, homogenous and heterogeneous approaches to instrumental music development. Consideration will be given to the development of individual performers as well as rhythm bands, chamber ensembles, marching and concert bands, and orchestras.

The inclusion of social instruments such as the recorder, guitar, accordion, etc., in a K-12 program will be studied.

Drama

Note: See Modern Languages, 37.—, for courses in Speech Communication (formerly 29.—).

29.109 Speech for the Theatre 4 Q.H.
(Prereq. 29.110)

The course focuses on special speech problems confronting actors performing in classical and contemporary theatre.

29.120 Introduction to Theatre Arts 4 Q.H.
(For *nondrama majors*)

The course provides a brief view of the historical development of acting, directing, and production design. Emphasis is on appreciation of contemporary theatrical forms.

29.121 Theatre Appreciation 4 Q.H.
The course presents an introduction to the drama as a dynamic medium of human expression; historical development of the theatrical form. Included are reading and analysis of selected plays as they relate to form, genre, and style from the viewpoint of audience and artist.

29.122 Theatre Experience 4 Q.H.
The course offers an introduction to the theatre as a collaborative art form (theoretical and practical), with an emphasis upon acting, directing, designing, lighting, and the necessities of theatre economics.

29.124 Reader's Theatre 4 Q.H.
A study of the skills necessary to adapt, direct, and perform short stories and novels for public presentation, including how to select and work with materials for either educational and/or entertainment purposes.

29.130 Stage Makeup 4 Q.H.
The principles of, the reasons for, and the materials used in makeup for the theatre, televi-

28.290 Directed Study 4 Q.H.
The focus of the course is independent work in a selected music area under the direction of members of the Department. Limited to qualified students with the approval of the department chairman, and only by special arrangements with the supervising faculty member.

93.160 American Musical Theatre 4 Q.H.
This is an interdisciplinary course, offered by the Departments of Drama and Music, in the development of the American musical—from *The Black Crook* to *Sugar Babies*—as entertainment and serious art form, through an examination of script, score, dance, and design. Works by Bernstein, Rodgers and Hammerstein, the Gershwins, Weill, Lerner and Loewe, and Cole Porter are examined.

sion, and films. The practical application of types and styles of makeup: straight, old-age, character, and corrective, are also included.

29.135 Twentieth-Century European Theatre 4 Q.H.

The work of major European directors and designers who have attempted to develop viable alternatives to nineteenth-century realism. Exploration of the ideas and productions of such persons as Meyerhold, Brecht, Artaud, Grotowski, Vakhtangov, Piscator, Brook, Svoboda.

29.136 The Theatre of Expanding Consciousness 4 Q.H.

The avant-garde theatre and its background in other arts as well as in society. The historical development of the avant-garde and some of its major themes are explored. An attempt is made to provide the student with the necessary background for discovering enjoyment and meaning in today's emerging theatre.

29.137 Image of Women in Western Drama 4 Q.H.

What is a woman? An examination of the way Western society, from the Greeks to the present day, has answered that question as revealed in its drama.

29.150 Acting I 4 Q.H.
(Prereq. Drama major or consent of instructor)

Fundamental techniques of stage use. The actor and the stage environment. Improvisations for strengthening imagination and increasing freedom. Analysis of scripts for work on performed scenes.

29.151 Acting II 4 Q.H.
(Prereq. 29.150)

Fundamental analysis of the script, including physicalizations and vocal scoring; character analysis; scenes performed for classroom analysis.

29.152 Acting III **4 Q.H.**
(Prereq. 29.151)

Further development of the actor's tools, script and character scoring, exercises for physical and psychological freedom. In-class scenes as works-in-progress are included.

29.154 Rehearsal and Performance **4 Q.H.**

Designed to allow the students to rehearse, perform, and produce a series of short dramatic works in which a variety of scripts and acting and directing concepts are explored under faculty guidance.

29.156 Body Movement I **4 Q.H.**

(Prereq. Drama major or permission of instructor)

Students begin with simple Esalen physical awareness exercises, have the opportunity to explore the warm-up process, and find which exercises serve them best. Simple theatre games (i.e., machines, transformations, activity improvisations) are introduced, and students have the opportunity to learn how to relax through concentration on a specific mental task.

29.159 Theatre Games **4 Q.H.**

This course offers a variety of basic dramatic, movement, and improvisational techniques that can be applied to theatrical, educational, and personal situations. Previous theatrical experience is not necessary.

29.160 Concepts of Direction **4 Q.H.**

(Prereq. Drama major or permission of instructor)

Theories of dramatic presentation through analysis of selected historical developments. Purposes and techniques of theatrical direction as they relate to script analysis, production style, pictorial composition, rhythmic evolution, and empathic responses.

29.161 Problems in Direction **4 Q.H.**

(Prereq. 29.160)

Experimentation in theory related to the staging of classical and modern drama. Analysis of plays in actual production; casting, rehearsals, character interpretations. Each student is responsible for the production of a one-act play.

29.164, 29.165, 29.166, 29.167 Practicum in Play Production **(each) 1 Q.H.**

Laboratory practice in technical theatre: scene building and painting, and performing backstage functions. To be repeated for credit, up to four credits.

29.170 Stagecraft **4 Q.H.**

Principles which underlie the coordination and execution of scenery for the stage; examination of different kinds of scenery, tools, equipment, construction materials, and techniques; handling of scenery and basic scene painting.

Laboratory work: constructing and painting scenery for University productions.

29.172 Scenic Design for the Stage **4 Q.H.**
(Prereq. 29.170)

Practical problems of scene design and methods of approach. Classwork and projects in analyzing a script in terms of visual requirements; elements of design and their applications to scenery; methods of inspiration; presentation of ideas including sketches, rendering, models, working drawings, and elevations; and evaluation of designs. Laboratory work includes executing scenery for University productions.

29.173 Lighting Design for the Stage **4 Q.H.**
(Prereq. 29.170)

Basic principles and practices of stage lighting, including the qualities and functions of light, lighting instruments and controls, basic electricity, color in light, and analysis of the script in terms of light requirements. Students are expected to develop light plots and schedules for various kinds of stage productions. Classwork includes laboratory work on lighting crews for University productions.

29.174 Scene Painting **4 Q.H.**

The history of scene painting and ornament from classical to contemporary times. Studio organization, color, color theory, equipment, tools, materials, and costs involved with painting stage scenery. Projects and exercises in the use of different media, matching colors, painting of textures, light and shade, and the use of stencils and physical textures. Laboratory sessions include painting stage scenery for University productions.

29.175 Costuming I **4 Q.H.**

The course presents the basic principles and ideals of costuming for the stage. Costume history is covered from pre-history through the Renaissance. Projects relate to historic periods covered.

29.176 Costuming II **4 Q.H.**

(Prereq. 29.175 or permission)

A continuation of Costuming I. Lectures on costume history cover the seventeenth century through the early twentieth century. Projects relate to both the historic periods covered, and such theatrical forms as drama, ballet, opera, and musical comedy.

29.177 Basics of Theatre Design and Style **4 Q.H.**

Visual style and ornamentation for the director, actor, designer, and audience. Examination is made of the script in terms of visual presentation. Work with the basics of design in relation to theatre and stage picture created by direction and design. Emphasis is on two-dimensional techniques of presentation based on psychology of color, line, and form and its effects on an audience. Graphic projects applying

various media and techniques to achieve effect or style are included.

29.178 Theatre Crafts 4 Q.H.

An exploration of special effects and materials used for the theatre. Puppetry construction and staging. Building handprops, masks, and wigs.

29.179 Pattern Drafting and Costume

Construction 4 Q.H.

Introduction to basic skills in simple pattern drafting and construction of basic garments. Lab work provides students an opportunity to acquire the knowledge and skills with which to design and adjust simple garments. Specifically designed for non-skilled beginners.

29.180 Playwriting I 4 Q.H.

The principles and practices of modern dramatic composition: characterization, plot, plot structure, dialogue, and other dramaturgical elements as seen in the one-act play. Included are the writing of brief scenes, the dramatic composition, and the one-act play.

29.181 Playwriting II 4 Q.H.

(Prereq. 29.180)

Continuation of 29.180.

29.182 Puppetry 4 Q.H.

A theoretical and practical survey of the art of puppetry. Utilizing a lecture/laboratory format, the history of puppetry is examined from pre-history through the present, and construction techniques for various styles of puppets are demonstrated and applied. The course covers shadow, hand, rod, hand and rod, bib, scarf, and marionette puppets.

29.185 Children's Theatre 4 Q.H.

Theories and methods of related creative techniques to children's programs in schools, churches, and recreational facilities. Analysis of literature in preparation for production of children's plays.

29.186 Educational Theatre 4 Q.H.

Drama and drama activities in community, social, health, and educational agencies. Organizing and directing young people's theatre programs is included.

29.200 Theatre History I 4 Q.H.

Development of the theatre and the drama of Greece and Rome, medieval Europe, Elizabethan and Restoration England, and seventeenth-century France; an examination of playwriting, acting styles, scene design, theatre architecture, and the relationship among these elements.

29.201 Theatre History II 4 Q.H.

Development of the European theatre of the eighteenth, nineteenth, and twentieth centuries; growth and development of the proscenium theatre; the emphasis upon naturalistic and realistic presentation; and theatre innovations.

29.203 The Theatre of Ibsen, Strindberg, and Chekhov 4 Q.H.

Intensive study of the theatre of the three great

masters of the Naturalistic movement in Europe, whose work stands as the foundation of modern drama.

29.205 The Restoration Theatre 4 Q.H.

The philosophical, social, historical, and critical influences upon the Restoration theatre and its dramatists.

29.207 New Trends in American Theatre 4 Q.H.

A survey of the evolution of theatre and drama in America during the sixties and seventies. Developments in the commercial, the nonprofit, and the experimental fields will be examined.

29.208 The Irish Theatre 4 Q.H.

The course focuses on theatre and drama in Ireland from the beginnings to the present, with the backgrounds of Irish folklore and history. Particular emphasis on developments in the twentieth century.

29.210 The American Theatre 4 Q.H.

The course focuses on the American theatre from the Revolutionary War to the present.

29.211 The Theatre of Williams, Miller, and Albee 4 Q.H.

The course offers an intensive study of the works of three major post-World War II American playwrights.

29.212 Black Theatre in America 4 Q.H.

The course provides a survey of the history of black theatre artists in America from the time of Ira Aldridge to the present day, and of the works of black playwrights from the Harlem Renaissance to the present, with an emphasis on the period beginning with Baraka's *Dutchman*.

29.213 Sexuality in the Drama 4 Q.H.

The course provides an examination of sexuality, homosexuality, deviant social behavior, and the trends toward and away from pornography in selected plays from Greek to contemporary theatre. Literary, critical, theatrical, and historical analysis.

29.214 Stage Management 4 Q.H.

The course offers a study of the fundamental techniques of stage management in educational, community, and professional theatres and the working relationships between stage managers and directing, acting, and technical personnel. The course includes the study of practical concepts of organizing and running performances, and a discussion of the philosophy of the stage manager as a collaborative artist and craftsman.

29.215 Stage Mechanics 4 Q.H.

(Prereq. 29.170)

This is a course in theatrical construction problem solving. Through a series of construction and material problems, the course focuses on advanced building and structuring techniques, materials, and organizational skills. A final project and presentation are required.

29.216 Period Scene Design 4 Q.H.
(Prereq. 29.172)

This course exposes students with some design experience to historic styles of architecture, interior design, and furniture. This knowledge is applied through theatrical design projects in specific historic periods and research projects on interior design styles.

29.217 Theatrical Drafting 4 Q.H.
With a combination of supervised classroom projects, the student is exposed to the basic graphic language needed to translate a designer's ideas into technical drawings used for construction. These basic skills can be used for future course work in design, university productions, and professional work.

29.218 Research for Theatrical Production 4 Q.H.
This course offers an introduction to the background resources used in preparing theatrical production of both period and contemporary plays. The course covers means of using libraries, museums, and special collections to discover information about a play's historical context, the period in which it is set, major views of the text, and approaches employed in significant earlier productions.

29.230 Contemporary Theatre 4 Q.H.
The course examines the various forces that have shaped the major trends in Western theatre over the past two decades with emphasis upon selected works and contributions of Brecht, Bolt, Miller, Wilder, Baraka, Bullins, Horowitz, the major absurdist, and present experimentalists; examination of contemporary theatrical concerns with nudity, obscenity, homosexuality, and the special economic and artistic formulations of contemporary plays.

29.231 The Theatre of the Absurd 4 Q.H.
The course focuses on the Theatre of the Absurd as an anti-literary reflection of and reaction to life; its effects upon Western drama. Major concern with selected works and ideas of Jarry, Artaud, Camus, Sartre, Beckett, Genet, Ionesco, Pinter, Kopit, Brown, and Arrabal.

29.232 The Comic Theatre 4 Q.H.
The course focuses on the comic theatre from its beginnings in the ancient Greek theatre to its performances in contemporary theatre; an examination of the comic playwright, the comic actor, the comic director—the synthesizing of the arts of the theatre to produce thoughtful as well as titillating laughter. Included are study of scripts by such playwrights as Aristophanes, Molière, Shaw, Neil Simon; techniques of Charlie Chaplin, the Marx Brothers, stand-up comics. Directional devices will be examined through lecture, film, records, and attendance at live performances.

29.233 Elizabethan Acting Styles 4 Q.H.
(Prereq. 29.151)
This course deals with Shakespeare's work through both scene study and research involving notable production concepts, and also handles other Elizabethan and Stuart dramatists. The course is structured as a problem-identification, problem-solving exercise.

29.234 Restoration and Eighteenth Century Acting Styles 4 Q.H.
(Prereq. 29.151)
Problems encountered in plays of the Restoration and eighteenth century are examined using various techniques including scene study.

29.235 Acting Styles for Twentieth-Century Nonrealistic Theatre 4 Q.H.
(Prereq. 29.151)
The plays of Beckett, Genet, Ionesco, Brecht, Albee, and others are examined specifically in light of the acting problems encountered by actors trained in an essentially naturalistic mode.

29.236 Special Topics in Acting and Directing 4 Q.H.
An in-depth examination of a subject of particular interest to the field.

29.237 Special Topics in Theatrical Design 4 Q.H.
An in-depth examination of a subject of particular significance to the field.

29.238 Special Topics in Theatre History—Dramatic Criticism 4 Q.H.
An in-depth examination of a special subject of particular interest to the field.

29.240 Drama Theory/Criticism 4 Q.H.
An examination of both the major historical statements of drama theory and contemporary drama criticism as evidenced in journalistic play reviews. Students are required to prepare reviews of local productions.

29.256 Body Movement II 4 Q.H.
(Prereq. 29.156)
The concentration-relaxation work is carried on in a more specific manner leading to an understanding of Michael Chekov's technique using body centers. Theatre games are also explored in more depth.

29.270 Theatre Management 4 Q.H.
Theatre management, including problems of financing, promoting, and programming for educational, community, profit and nonprofit professional theatre.

29.280 Senior Project in Drama 4 Q.H.
(Prereq. Drama majors only)
The student, working closely with his/her advisor, has the opportunity to develop a project that integrates the work that has been pursued to date, and demonstrate his/her capacity to

enter the professional theatre or to pursue graduate studies.

29.285 Drama Movement and Therapy 4 Q.H.
An exploration of teaching and rehabilitative methods, using the techniques of creative dramatics and dance/movement therapy. An emphasis will be placed on the exceptional child and on the physically and emotionally handicapped.

29.286 Rehabilitative and Theatrical Makeup 4 Q.H.
Use and application of makeup for corrective and rehabilitative purposes as well as for stage purposes. Special emphasis is on techniques utilized to enable physically deformed individuals to achieve a facial impression of the aesthetically normal and societally acceptable. For those interested in stage impressions, em-

phasis on three-dimensional constructions, prosthesis with latex, beards and moustaches.

29.290, 29.291 Directed Study (each) 4 Q.H.
29.295, 29.296, 29.297, 29.298 Junior-Senior Honors Program (each) 4 Q.H.
For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

93.160 American Musical Theatre 4 Q.H.
(Fall and Winter)
An interdisciplinary course, offered by the Departments of Drama and Music, in the development of the American musical as entertainment and serious art form, through an examination of script, score, dance, and design. Works by Bernstein, Rodgers and Hammerstein, the Gershwins, Weill, Lerner and Loewe, and Cole Porter are examined.

English

Prerequisite for all English courses is a minimum of Freshman English courses (30.113 and 30.114) or equivalent. Please consult the English Department catalogue for more information on all courses listed. Topic courses change quarter by quarter.

30.100 Intensive English as a Second Language
Intensive review of English grammar to help students develop listening, speaking, reading, writing, and studying skills in the classroom, language laboratory, and small group tutorials.

30.101 Fundamentals of English I 4 Q.H.
(Prereq. Special placement)
The course offers an introduction to principles of effective expository writing; emphasis on description, paragraph construction, and organization; review of the conventions of English usage, punctuation, and syntax; essay assignments.

30.102 Fundamentals of English II 4 Q.H.
(Prereq. 30.101)
Focus on exposition, argument, and academic essay writing; instruction in writing a research paper; continued emphasis on the conventions of English usage, punctuation, and syntax; essay assignments.

30.103 Grammar for Journalists 4 Q.H.
(For journalism majors only)
Reviews the mechanics of newspaper and magazine prose; emphasis is on grammatical forms, punctuation, spelling, effective structures, and conventional usage; exercises and essay assignments.

30.104 Intermediate Writing 4 Q.H.
Provides writing instruction for students who wish to improve their writing skills; opportunity for students to develop their particular interests in subject matter and form.

30.106 English for International Students I (Prereq. Special placement) 4 Q.H.
Focuses on prose literature and on descriptive, narrative, and expository techniques. Weekly papers are aimed at broadening diction and syntactical and organizational techniques, in addition to dealing with responses to form and content.

30.107 English for International Students II (Prereq. 30.106) 4 Q.H.
Selected literature and writing assignments aimed at diction and syntactical and organizational techniques.

30.108 Creative Writing 4 Q.H.
Gives the beginning writer an opportunity to practice various forms of writing, both poetry and prose. Class discussion of student work.

30.110 Poetry 4 Q.H.
Extensive exercise in close reading of selected poems, study of critical terms, and practice in different critical approaches to poetry; examination of techniques for reading a variety of poetic texts; critical papers required.

30.111 Fiction 4 Q.H.
Close reading of selected novels and short stories, study of critical terms, practice in different critical approaches to fiction; critical papers required.

30.112 Drama 4 Q.H.
Close reading of selected plays, study of critical terms, practice in different critical approaches to drama; critical papers required.

30.113 Freshman Writing 4 Q.H.

The course focuses on the individual student's writing skills. Included are application of important principles of logic and rhetoric to exposition and argumentation; review of sentence structure, punctuation, and paragraphing; extensive reading and analysis of the essay form; theme assignments.

30.114 Introduction to Literature 4 Q.H.

An introduction to literary forms; poetry, prose fiction, and drama. Intensive reading of various forms and discussion of different approaches to literature. Students are required to write critical papers, and are expected to develop techniques of research and documentation.

30.115 Great Themes in Literature 4 Q.H.

Content determined by instructor, who chooses a theme and a number of illustrative works from different periods. Students are required to write critical papers, and are expected to develop techniques of research and documentation.

30.117 Topics in Fiction 4 Q.H.

Studies a particular kind of fiction, such as the novella; a problem in fiction, such as the role of the narrator; a particular group of fiction writers; or a theme in fiction.

30.118 Topics in Drama 4 Q.H.

Studies a particular kind of drama, such as comedy or tragedy; a problem in drama; a particular group of dramatists; or a theme in drama.

30.119 Topics in Poetry 4 Q.H.

Studies a particular kind of poetry, such as the sonnet or the dramatic monologue; a problem in poetry; a particular group of poets, such as the confessional poets; or a theme in poetry.

30.120 Introduction to Linguistics 4 Q.H.

Background in current linguistics. Diverse topics include the nature and origin of language, animal communication systems, prescriptive and descriptive grammar, language change, dialects, and language in literature. Reviews modern concepts of language structure; phonology, morphology, syntax, and semantics.

30.121 Foundations of the English Language 4 Q.H.

Studies the development of modern English from Anglo-Saxon beginnings; effects of Scandinavian and Norman invasions; dialect geography; evolutionary changes, word formation and borrowing; origins of writing and problems of spelling. Readings include both formal and informal writings, literary selections, wills, journals, and private and public letters.

30.122 Topics in Genre 4 Q.H.

Studies several genres concurrently; or studies, cross-generically, literary modes such as satire, pastoral, or melodrama; or studies a theme in a number of different genres.

30.125 Grammars of English 4 Q.H.

Designed for students seeking comprehensive knowledge of English grammar, this course provides a study of structure and usage in English according to traditional, descriptive, and generative (transformational) approaches.

30.126 Transformational Grammar 4 Q.H.

The theories of generative-transformational grammars by Noam Chomsky and others, and the opportunity to develop the skill with which to construct and operate specific generative-transformational grammars.

30.130 Introduction to Semantics 4 Q.H.

The relation between language and behavior, levels of abstraction in communication, habits of evaluation of linguistic phenomena, and the modification of such habits in the direction of human understanding and survival.

30.131 Topics in Linguistics 4 Q.H.

Examines closely such topics as the application of linguistics to the study of literature, problems in semantics (e.g., language in law, language and social class), or problems in American dialects.

30.141 Science Fiction 4 Q.H.*

The myths and rhetorical (scientific and pseudo-scientific) strategies of science fiction from Mary Shelley's *Frankenstein* through current authors such as Vonnegut, Bradbury, Heinlein, and Clarke.

30.142 Psychology and the Novel 4 Q.H.

Concentration on twentieth-century novels whose themes stress individual behavior and motivation, and whose form and style often try to imitate human mental and emotional processes. Includes novels by such writers as Kafka, Dostoevski, Faulkner, Conrad, and Lawrence.

30.146 Modern Bestseller 4 Q.H.

Explores the function of quest, romance, and adventure in a selection of contemporary, bestseller fiction by such authors as Hailey, Robbins, and Irving Wallace.

30.147 Topics in Science Fiction 4 Q.H.

Focuses on a single writer or group of writers (Wells, or writers of contemporary American science fiction); a theme (women in science fiction, or the future city); or a unifying idea (time travel, or utopia/dystopia).

30.148 Sex Roles in Literature 4 Q.H.

Investigates the relationship between sex roles, male and female, and literary portrayals. Selections represent male and female writers and provide a culturally comparative perspective. Readings include novels, plays, autobiographies, short stories, poems, as well as critical materials.

30.151 The Modern Novel 4 Q.H.
Studies the themes of important novelists of the twentieth century; analyzes styles, techniques, and trends in fiction; includes such authors as Joyce, Lawrence, Hemingway, Faulkner, and Bellow.

30.152 Modern Drama 4 Q.H.
Studies the development of drama since the late nineteenth century as a function of realism, naturalism, symbolism, and surrealism.

30.154 The Modern Short Story 4 Q.H.
The study of short story writers with close attention to such figures as Poe, Joyce, Lawrence, Hemingway, and Oates.

30.155 Contemporary Fiction 4 Q.H.
British and American writers from 1945 to the present, including such figures as Britain's Lessing, Burgess, Amis, and Powell; and America's Pynchon, Vonnegut, Oates, and Barth. Emphasis is on the experimental and modernist authors.

30.156 Fantasy 4 Q.H.
Studies in the theory and practice of fantasy as found in the works of such authors as Swift, Carroll, Wells, and C.S. Lewis.

30.157 Topics in Fantasy 4 Q.H.
Explores such areas as dreams, nightmares, and borderline states of consciousness in the works of such writers as Poe, Tolkien, and Kafka.

30.158 Literature in Context 4 Q.H.
Attempts to place the writer in the context of a special theme. For example, the course might study a group of authors influenced by their common interest in psychoanalysis, by their social consciousness, or by an interest in the Wild West and the settlement of America.

30.159 Literature in Context 4 Q.H.
Similar to 30.158 but with different texts and contexts in a given year.

30.160 Topics in Literature 4 Q.H.
This course deals experimentally with subjects and themes such as heroes and villains, myth and folklore, or Japanese fiction since World War II.

30.161 Topics in Literature 4 Q.H.
Similar to 30.160 but with different topics in given year.

30.162 Major Figure 4 Q.H.
Devoted entirely to the work of one writer. Specific writers vary widely and change frequently, for example, Mark Twain, Virginia Woolf, or Eugene O'Neill may be selected.

30.163 Major Figure 4 Q.H.
Similar to 30.162, but with concentration on a different writer in a given year.

30.164 Business Tradition in Literature 4 Q.H.
Examines the various literary images of the businessman as new frontier opportunities for

the accumulation of wealth opened up. Biographies, autobiographies, novels, plays, and films are examined to study the many facets of these captains of industry and to determine their impact on society.

30.165 Literature and the Law 4 Q.H.
This course uses literature to investigate the problems of crime and justice as they occur throughout time, from ancient Greek tragedies to modern American novels. The readings may help the student to discover the changing nature of the criminal—hero or victim or villain—and to deal with the social, psychological, and political facts that define him.

30.166 Urban Life and Literature 4 Q.H.
This course examines the city in literature as it has been depicted from ancient times to the present. Such themes as the city as a locus of evil, the city as a place of possibility, and the city as a center of art and an influence on creative form are discussed. Works by Plato, Virgil, Juvenal, Addison, Fielding, Defoe, Balzac, Whitman, Melville, James, Howells, Crane, Joyce, Dreiser, Eliot, Dos Passos, West, Bellow, Malamud, and Barthelme, among others, may be included on the reading list. The purpose of the course is to provide the student an opportunity to discover how an interdisciplinary approach to literature can be used critically—and how the city is a cultural resource, a subject of wonder, and a constant concern in literature.

30.167 Literature and Politics 4 Q.H.
Explores way authors from Sophocles to Mailer represent the religious, moral, and ethical conflicts arising from the acquisition, use, and misuse of political power. The literature falls into several categories: utopian, which establishes a conflict between the idea and the real; satirical, which threatens a power structure by exposing it to scorn; analytic, which describes the rise to and fall from power of individuals, parties, or states; and investigative, which takes the reader inside a power elite to observe its inner operations. The course examines the difference between the ideal of government and its reality.

30.168 The Literature of Science 4 Q.H.
Examines the literary methods used by scientists to involve us in their experiences and discoveries. Many of the most creative minds of science have left literary works, full of clarity, vigor, and emotive power. Explores a variety of these works from antiquity to the present to see how the creativity of the scientist is fundamentally the same as the creativity of the man of letters. Readings will be drawn from astronomy, physics, natural history, biology, mathematics, and psychology.

30.169 Film and Literature 4 Q.H.*
This course explores the way in which film can

transform the written word to a visual experience, and illustrates the way in which cinematic techniques help create and extend the meaning of that visual experience. Weekly screening sessions give students the opportunity to pursue and develop cinematic interests evolving from class discussions.

30.170 Survey of English Literature I 4 Q.H.

Surveys the major British writers and major literary forms and works from the Middle Ages to the end of the eighteenth century. Works by such writers as Chaucer, Spenser, Shakespeare, Milton, Pope, and Swift will be read and discussed.

30.171 Survey of English Literature II 4 Q.H.

Surveys the major British writers and major literary forms and works from the romantic period (c. 1800) to the mid-twentieth century. Works by such writers as Wordsworth, Keats, Browning, Yeats, Lawrence, and Eliot will be read and discussed.

30.175 Contemporary American Literature 4 Q.H.

The course explores the major literary movements and developments in American poetry and fiction from the Second World War to the present. Works by such writers as Lowell, Roethke, Plath, Pynchon, Barthelme, and Vonnegut will be read and discussed.

30.178 Shakespeare on Film 4 Q.H.*

This course examines the various treatments of Shakespeare's plays on film. It is concerned with the technical aspects of film and how these are used by directors to transfer Shakespeare's plays from the stage to the screen.

30.180 Survey of American Literature I

Surveys the major American writers and major literary forms and works from the colonial period to the Civil War. Works by such writers as Taylor, Cooper, Poe, Hawthorne, Melville, and Emerson will be read and discussed.

30.181 Survey of American Literature II

Surveys the major American writers and major literary forms and works from the Civil War to the mid-twentieth century. Works by such writers as Whitman, Dickinson, Twain, James, Hemingway, Fitzgerald, and Faulkner will be read and discussed.

30.182 American Novels I 4 Q.H.

Focuses intensively on the themes, forms, and techniques of the major American novelists of the nineteenth and early twentieth centuries, such as Cooper, Hawthorne, Melville, James, and Dreiser.

30.183 American Novels II 4 Q.H.

The course focuses intensively on the themes, forms, and techniques of modern American novelists such as Hemingway, Fitzgerald, Steinbeck, and Faulkner.

30.185 Topics in Film

4 Q.H.*

The course focuses on a movie genre (e.g., the western, the gangster film, the thriller), on a movie personality (e.g., an actor, writer, director), or on a theme (e.g., women in the movies).

30.186 Early American Literature

4 Q.H.

Examines American literature of the colonial and federal periods, including Bradford, Taylor, Edwards, Franklin, Irving, and Cooper.

30.187 New England Renaissance

4 Q.H.

Studies the development of a native tradition in the context of democratic and romantic attitudes toward experience and the paradox these attitudes reveal. Works by such writers as Emerson, Thoreau, and Melville will be read and discussed.

30.189 American Realism

4 Q.H.

Examines the realistic tradition in American literature, including local color and native humor, from the end of the Civil War to the turn of the century. Works by such writers as Twain, James, Howells, Crane, and Norris will be read and discussed.

30.190 Modern American Literature

4 Q.H.

Explores the major literary movements and developments in American poetry and fiction from the turn of the century to the Second World War. Works by such writers as Anderson, Wharton, Fitzgerald, Faulkner, Frost, and Williams will be read and discussed.

30.191 Children's Literature

4 Q.H.

Studies the history of children's literature in the English language, with special attention to matters such as genre theory and critical approaches. Such works as *Alice in Wonderland*, *Uncle Remus*, *Little Women*, and *The Wizard of Oz* will be read and discussed.

30.192 Topics in Children's Literature

4 Q.H.

Focuses closely either on a specific collection of stories (e.g., Grimm's Fairy Tales), on a specific genre (e.g. boys' books), or on a problem of evil or children's literature (e.g., the problem of evil or children's literature as a form of group socialization).

30.193 Popular Culture

4 Q.H.

Surveys the development of popular culture in the United States as the living culture that arose in response to the development of a leisure-time market and the technology to reach it. The focus of the course is on the mass media, surveyed chronologically for evidence of trends arising from changes in popular taste and technology. Among the media to be discussed are popular literature, radio, and television.

30.194 Topics in Popular Culture

4 Q.H.

The course focuses on such topics as the soap opera, the western, the police story, etc., on a popular culture activity, or on a popular culture perspective.

30.195, 30.196 Freshman English for Honors Students (each) 4 Q.H.

(Prereq. Special placement)

Equivalent of 30.113 and 30.114 for Honors Program Freshmen. Meets during winter and spring terms so that both science and non-science majors in the Honors Program can enroll together. See English Department course listing for description, under 30.113, 30.114.

30.200 Technical Writing I 4 Q.H.

This course is a composition elective to train writers for careers in technical writing. Course provides instruction in writing clear, unambiguous prose; describing processes; and researching published information through practice in writing memoranda, proposals, feasibility and program reports, and operation manuals.

30.201 Technical Writing II 4 Q.H.

(Prereq. 30.200 or permission of instructor)

This is a course in technical writing for students who wish to develop skills in a particular subject or form.

30.203 Writing for the Professions:**Health Services 4 Q.H.**

This course is designed to serve the professional writing needs of students in the College of Nursing and the College of Pharmacy and Allied Health Professions through instruction in formal rhetoric and practice with a variety of professional forms: lab reports, clinical evaluations, medication analyses, and HEW proposals.

30.204 Advanced Writing 4 Q.H.

(Prereq. 30.104 or permission of instructor)

A composition elective for experienced writers who wish to hone their skills; opportunity for students to develop their particular interests of subject and form.

30.205 Writing for the Professions:**Business Administration 4 Q.H.**

This course is designed to serve the professional writing needs of students in the College of Business Administration through instruction in formal rhetoric and practice with a variety of professional forms: letters, short memos, formal staff reports in the functional areas of accounting, personnel, marketing, finance, transportation, and insurance.

30.206 The Literature of Engineering 4 Q.H.

This course is designed to serve the professional writing needs of students in the College of Engineering through instruction in formal rhetoric and examination of a variety of professional forms: description, analytical reports, systems design, lab reports, and proposal specifications.

30.207 Writing for the Professions:**Criminal Justice 4 Q.H.**

Designed to serve the professional writing

needs of students in the College of Criminal Justice, this course offers instruction in formal rhetoric and practice with a variety of professional forms.

30.208 Poetry Workshop 4 Q.H.

(Prereq. 30.108 or permission of instructor)

This is an advanced workshop course in writing and examining original student poetry. Students are expected to experiment in some established poetic forms of their own choosing, and to produce their own original work.

30.209 Fiction Workshop 4 Q.H.

(Prereq. 30.108 or permission of instructor)

This is an advanced workshop course in writing and examining original student fiction.

30.210 Major Early British Novelists 4 Q.H.

The course surveys the early English novel by such authors as Defoe, Fielding, Smollett, Sterne, and Austen. The novels will be read and discussed to determine themes and characteristics, and to chart the development of the genre in the eighteenth century.

30.211 Major Nineteenth-Century British Novelists 4 Q.H.

The course surveys the nineteenth-century English novel by such authors as the Brontës, Thackeray, Eliot, Meredith, and Hardy. The novels will be read and discussed to determine themes and characteristics, and to chart the development of the genre in the nineteenth century.

30.212 Major Twentieth-Century British Novelists 4 Q.H.

Surveys the twentieth-century English novel by such authors as Joyce, Lawrence, Woolf, and Durrell. The novels will be read and discussed with the goal of determining the characteristics and charting the development of the genre in the twentieth century.

30.213 English Drama I 4 Q.H.

Surveys representative English drama, excluding Shakespeare, from the Towneley Cycle to Sheridan. The dramas will be read and discussed to determine themes and characteristics, and to chart the development of the genre from its origins in England to the end of the eighteenth century.

30.214 English Drama II 4 Q.H.

Surveys representative English drama of the nineteenth and twentieth centuries. The dramas will be read and discussed to determine themes and characteristics, and to chart the development of the genre from the nineteenth century to the present.

30.215 Publication Arts 4 Q.H.

This course is designed to acquaint students with basic publishing skills. Each student can choose an area of specialization, such as fiction, medicine, law, or engineering in order to develop skills in editing manuscripts.

30.218 Medieval English Literature 4 Q.H.
Surveys the major works of medieval English literature. Works such as *Sir Gawain*, *Piers Plowman*, and *Pearl* will be read and discussed.

30.222 Chaucer 4 Q.H.
Surveys the work of Chaucer, with particular emphasis on *The Canterbury Tales*.

30.223 Topics in Chaucer 4 Q.H.
Examines closely a particular work or group of works (such as *Troilus and Cressida*), or a theme (such as Chaucer's symbolism).

30.225 Milton 4 Q.H.
Concentration on Milton's *Paradise Lost*, with supplementary readings in his minor poetry and prose.

30.227 Topics in Medieval Literature 4 Q.H.
The course focuses on such topics as a genre (e.g., romance or debate literature), or on a theme (e.g., alchemy or King Arthur).

30.228 Nonfiction Workshop 4 Q.H.
(Prereq. 30.104 or 30.108 or permission of instructor)

This is an advanced workshop course in writing with focus on such forms as short essays, reviews and profiles.

30.230 Seventeenth-Century English Literature 4 Q.H.

Examines major writers of the period, such as Bacon, Jonson, the metaphysical poets, Donne, Herbert, Dryden, and Milton.

30.231 Topics in Seventeenth-Century English Literature 4 Q.H.

This course examines closely either a single writer or group of writers (e.g., Dryden or the metaphysical poets), or a topic, such as the flourishing of satire.

30.236 Eighteenth-Century English Literature 4 Q.H.

Surveys the period; includes such major writers as Pope, Addison, Steele, Swift, Goldsmith, Burns, Johnson, and Boswell.

30.237 Topics in Eighteenth-Century Literature 4 Q.H.

Examines closely such topics as a single writer or group of writers (e.g., Swift or the essayists), a genre (e.g., satire), or a theme (e.g., reason and madness).

30.240 Romantic Poetry 4 Q.H.
Surveys the work of the major romantic poets: Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats.

30.241 Victorian Literature 4 Q.H.
Surveys the major literature of the period, from the works of Tennyson, Arnold, and Dickens to the works of G.M. Hopkins, Wilde, and the early writing of G.B. Shaw and Conrad.

30.242 Topics in Romantic Poetry 4 Q.H.
This course examines closely a single writer or group of writers (e.g., the Keats-Shelley circles)

or a theme (e.g., poetry and revolution or the creative process).

30.243 Topics in Victorian Literature 4 Q.H.
Examines closely a single writer or group of writers (e.g., Wilde or the fantasists) or a theme (e.g., the movement toward modernism or decadence).

30.244 World Literature I 4 Q.H.
Readings in world literature from the time of the Greeks through the Renaissance.

30.245 World Literature II 4 Q.H.
Readings in world literature from the Renaissance through the modern period.

30.246 Twentieth-Century English Literature 4 Q.H.

Surveys the major writing of the period, including such writers as Shaw, Beckett, Yeats, T.S. Eliot, Auden, Conrad, Joyce, Lawrence, Greene, Lessing, Murdoch, and Fowles.

30.247 Topics in Twentieth-Century English Literature 4 Q.H.

Examines closely the work of a single author or group of authors (e.g., Lawrence or post-war authors) or a topic (e.g., forms of modernism or imperialism).

30.248 Sixteenth-Century Literature 4 Q.H.
Concentration on sonnets, love lyrics, and erotic narrative poetry, principally by Wyatt, Sidney, Marlowe, and Shakespeare.

30.249 Masterpieces of World Literature 4 Q.H.
Includes a selection of "great books," primarily by non-English authors, that have been central to the development of Western thought and culture.

30.250 Shakespeare's Comedies 4 Q.H.
Studies the romantic comedies, problem comedies, and comedies of regeneration, ranging from *The Merchant of Venice* to *The Tempest*.

30.251 Shakespeare's Tragedies 4 Q.H.
Studies the nature of the tragic hero, the questioning of social norms, and the landscape of chaos, ranging from *Julius Caesar* to *King Lear*.

30.252 Topics in Shakespeare 4 Q.H.
Examines closely such topics as the history plays, Shakespeare in performance, the Shakespearean hero, and psychological approaches to Shakespeare.

30.253 Introduction to Shakespeare 4 Q.H.
The course covers a selection of the major plays of Shakespeare, including both tragedies and comedies.

30.260 The Bible 4 Q.H.
Study and analysis of selected books of the Bible. Texts are considered in their historical and literary contexts.

30.262 Approaches to Literature 4 Q.H.
Exercises and readings in ancient and modern theories of literature. Included are Marxist, Freudian, Jungian, and New Critical theories, as

well as selections from the criticism of Plato, Aristotle and the Romantics.

30.263 Modern Poetry **4 Q.H.**
Studies the origin and development of the modern tradition in poetry, its form and subject matter; includes such writers as Yeats, Hardy, Frost, Eliot, and Stevens.

30.264 Topics in Modern Poetry **4 Q.H.**
Focuses on a particular theme such as the poet's use of the past or his role in politics, or a particular problem in modern poetry, or a particular group of modern poets.

30.266 Myth and Archetype in Literature **4 Q.H.**
Studies 20th-century theories of myth and archetype as they have influenced our understanding and analysis of works of literature.

30.272 Studies in English Literature I **4 Q.H.**
A seminar on a special topic in English literature, such as color symbolism in literature or John Donne and the metaphysical poets.

30.273 Studies in English Literature II **4 Q.H.**
Continuation of 30.272.

30.274 Studies in American Literature I **4 Q.H.**
Studies a special topic in American literature, such as the genteel tradition or American humor.

30.275 Studies in American Literature II **4 Q.H.**
Continuation of 30.274.

30.277 Topics in Literary Criticism **4 Q.H.**
Studies a particular problem, method, or school

of criticism, such as structuralism, mythopoeic, or archetypal criticism.

30.279 Contemporary Poetry **4 Q.H.**
Focuses primarily on British and American poetry since World War II. Includes such writers as Roethke, Plath, Olson, Ammons, Hughes, and Larkin.

30.280, 30.281 Junior-Senior Seminar **(each) 4 Q.H.**

(Open to all upperclassmen in the College of Arts and Sciences; first preference is given to those needing the course to complete the major). The upperclass student with a strong competence in the humanities will have the chance to devise, pursue, and develop a response to an important issue in literature, e.g., the writer and his audience, the tradition of the new, style and meaning in literature, and literature and society. Class-time emphasis will be on discussing the broader implications of the issue dealt with by the seminar, as well as on presenting independent research toward the end of the quarter. The role of the instructor will be that of moderator, research resource, and guide, rather than that of lecturer.

30.290, 30.291 Directed Study **(each) 4 Q.H.**

30.295, 30.296, 30.297, 30.298 Junior-Senior Honors Program **(each) 4 Q.H.**
For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Modern Languages

Prerequisites listed for Modern Languages are based on current course numbers at Northeastern. If approved by the Department of Modern Languages and the Dean's Office, equivalent course work done elsewhere may be considered acceptable to satisfy these prerequisites.

The courses described immediately below are given in *English*, and no knowledge of a foreign language is required to take them. For language majors interested in obtaining major credit for any of these courses, please consult your instructor.

31.217 French Literature in Translation **4 Q.H.**
An elective course for all students, offering a study of some of the most significant works of French literature in translation.

31.252 The Theme of Solitude in French Literature **4 Q.H.**
Course conducted in English. Texts read in English translation (those who wish to do so may read them in French). The multiple facets of the theme of solitude traced from the beginnings of French literature to that of the present. Viewed as both a source of wonder and anguish, solitude studied in its various manifestations, including banishment, imprisonment, expatriation, and seclusion. The phenomena of moral and spiritual solitude are

examined as well. Among authors studied are Charles d'Orleans, Du Bellay, Rousseau, Chateaubriand, Hugo, Verlaine, Mauriac, and Camus.

31.255 Masterpieces of Modern European Fiction **4 Q.H.**

This course is conducted in English and focuses on modern European authors, including Dostoevski, Mann, Kafka, Proust, Gide, and Camus. Their works are viewed as commentaries on their respective societies and, more generally, as investigations of the human condition.

31.282 French Seminar: Voltaire and Rousseau **4 Q.H.**

This course offers an opportunity to study and compare the two great figures of the 18th century. Through an analysis of their works, students have the opportunity to determine how, by their contrasting interests, personalities, and views of society, they contributed to fundamental changes in the political, philosophical, and literary world of their time—and ours. Class

discussion, oral and written reports. Conducted in English. Offered in alternate years.

32.215 Backgrounds in Hispanic Culture I 4 Q.H.
A multimedia approach is utilized to present the rich panorama of the humanities from Altamira to modern times. A reading knowledge of Spanish is helpful, but not required, as the course is conducted in English. Field trips, concerts, guest speakers, and individual study projects enhance this exploration of Spanish creativity.

32.216 Backgrounds in Hispanic Culture II 4 Q.H.
This course spans the time from pre-Columbian days to the present in Latin America, exploring culture, traditions, and attitudes. A multimedia approach with field trips and guest lecturers. Conducted in English.

32.217 Saints and Sinners: The Vision of Women in the Middle Ages and the Renaissance 4 Q.H.
Topics include the attainment of and the atonement for love; society's changing attitude toward women as reflected in the literature of the times. Selected fabliaux, short stories, poems, and plays from Boccaccio, Chaucer, Ruiz, Rojas, Machiavelli, Lope de Vega, Calderon, Quevedo, Racine, Middleton, as well as women writers. Reference is made to historical and sociological materials. This course is offered in English. All required readings are in translation.

34.215 Backgrounds in Russian Culture 4 Q.H.
Designed to offer the student a view of Russian culture and civilization, the course utilizes guest speakers, films, field trips, and discussions. Conducted in English.

34.217 The Works of Alexander Pushkin in Translation 4 Q.H.
The course offers a survey and analysis in English of Alexander Pushkin's artistic prose, lyric poetry, correspondence, friendships, and major literary influences.

34.218 Russian Literature in Translation 4 Q.H.
A companion to 34.217, this is a survey and analysis in English of some of the works of Tolstoi, Dostoevski, Chekhov, and others.

35.217 The Works of Dante in Translation I 4 Q.H.
This course considers briefly the cultural background and various literary schools that influenced Dante. His life, his character, and his minor works are discussed. The *Vita Nuova* and the first cantica of the *Divina Commedia*, the "Inferno," are read and analyzed in some detail. This course is intended for students of any background or major. Bilingual texts will be used so that students with a background in Italian, and others, may refer to the original for added interest and enrichment. Classes are conducted in English.

35.218 The Works of Dante in Translation II 4 Q.H.

Continuation of 35.217, but may be taken separately. The other two parts of the *Divina Commedia*, "Purgatorio" and "Paradiso," are studied in detail. The course is open to anyone. Bilingual texts used. Classes conducted in English.

35.280 Italian Seminar: Pirandello 4 Q.H.
By viewing reality in man's world and man's personality with strikingly new insights, Pirandello contributed a new dimension to our understanding of human nature and brought about significant changes to the traditional conception of the theatre. We will examine the originality and art of Pirandello by a close study of some of his great plays and short stories. Class discussions, oral and written reports. Conducted in English. Offered in alternate years.

French

31.201 Elementary French I 4 Q.H.
Designed for students with very little or no prior knowledge of French, this course provides a lively introduction to basic oral expression, listening comprehension, and elementary reading and writing. The audio-lingual approach, using practical vocabulary drawn from realistic situations, aims at good pronunciation and ease in response. Each lesson incorporates helpful information about daily life in France and the varied cultures within the world of French speakers. Laboratory practice complements classwork, enables students to work aloud at their own speed, reinforces their acquisition of essential structures, and acquaints them with a vast library of audio-visual resources.

31.202 Elementary French II 4 Q.H.
(Prereq. 31.201)
This course's intent is to continue and broaden beginners' exposure to the "four skills"—oral comprehension, speaking, reading, and writing French—so that the linguistic tools needed to understand and function in foreign contexts—at home, abroad, and in the world of literature and film—may be acquired.

31.203 Intermediate French I 4 Q.H.
(Prereq. 31.202 or equiv.)
This course, for students who wish to further their audio-lingual skills and improve their reading and writing, combines a review and continued study of grammar essentials with oral, writing, and language laboratory practice. Varied readings include journalistic, cultural, and modern literary texts. Classes are conducted in French as much as possible so that students may exercise their new skills.

31.204 Intermediate French II 4 Q.H.
(Prereq. 31.203)
This course uses the fundamentals of French to promote effective self-expression through speaking and writing, and to explore the idio-

matic aspects of the language. Through progressive class discussions and oral and written commentaries, students analyze a contemporary French novel or a French cultural reader, screenplay, or collection of short stories. The course strives first, to help students read and comprehend modern French writing with confidence, and to be able to talk and write about it in good French; and second, to provide them the opportunity to prepare for advancement to courses beyond the intermediate level.

31.205 Reading French in the Arts and Sciences (Prereq. 31.202 or equiv.) **4 Q.H.**

This course is designed for those students who wish to develop their reading skills, without regard to other aspects of the language such as speaking or writing. To this end, the grammar necessary for reading is stressed, together with vocabulary building. Scientific and nonscientific texts are read. This course may also provide assistance to students, graduate and undergraduate, who need to pass a reading examination to fulfill specific degree requirements. However, it should be made clear that this course is not a substitute for 31.203 or 31.204 (Intermediate French).

31.215 Introduction to the French-Speaking World (Prereq. 31.204 or equiv.) **4 Q.H.**

This course offers a cultural introduction to the French-speaking world through the study of various reading selections in the textbook *Le Monde Français*. These selections, which stress vocabulary building and proper usage of a wide variety of grammatical forms, deal with the traditional backgrounds and aspects, as well as the contemporary and "pop" aspects, of the cultural heritage of the world's French speakers. France will be the main, but not the exclusive, focus of this course.

31.217 Modern Philosophical French Literature In Translation **4 Q.H.**

Camus and Sartre are considered to have been the spokesmen for their generation's philosophical concerns. Works by these two authors are studied in the course and a working knowledge of existentialism is developed from them. Course given in English.

31.227 French Composition and Conversation I (Prereq. 31.204 or equiv.) **4 Q.H.**

This course is designed for qualified students who wish to work on improving their proficiency in speaking and writing French through oral reports, class discussions, compositions, and an advanced review of fundamentals. Grammar work focuses on the students' particular needs as well as the nuances of the language. Varied readings in a range of styles—popular to literary—provide insight into French life and culture. Conducted in French.

31.228 French Composition and Conversation II (Prereq. 31.227 or equiv.) **4 Q.H.**

A continuation of French 31.227, with emphasis on individual work, oral presentations, discussions, related grammar, and analysis of readings. Conducted in French.

31.229 Advanced French Proficiency I (Prereq. 31.227 and 31.228 or equiv.) **4 Q.H.**

Emphasis is on further vocabulary building and mastery of fine points of grammar through written composition, prepared oral reports, and reading and discussion of articles from current periodicals. Special attention is given to the latest trends in spoken French, the study of idioms and proverbs, as well as selected examples of "argot" (slang).

31.230 Advanced French Proficiency II (Prereq. 31.227 and 31.228 or equiv.) **4 Q.H.**

This course is the continuation of 31.229. In addition to further study in the areas covered in course 31.229, each student is expected to pursue one major project throughout the course, to be completed at the end of the quarter—such as planning and writing an original French magazine with one article to be submitted each week of the term.

31.231 Masterpieces of French Literature I (Prereq. 31.204 or equiv.) **4 Q.H.**

This course provides an introduction to French poetry, theatre (both comedy and tragedy), novels, and autobiography through the study of key works from the Middle Ages and Renaissance through the Age of Enlightenment. The course includes such writers as Villon, Molière, Racine, Voltaire, and Rousseau. The course, conducted largely in French, aims to acquaint students with a critical approach to reading; to help them improve their reading, speaking, and writing skills; and to apply these new skills to a greater understanding and appreciation of major French contributions to Western culture. Group discussions are encouraged in an effort to bring out the relation between the texts and contemporary issues.

32.232 Masterpieces of French Literature II (Prereq. 31.204 or equiv.) **4 Q.H.**

A continuation of 31.231 (not necessarily a prerequisite). The course presents some of the most interesting and significant works of literature from the Romantic Age to the present. Among the readings are an "existential" play by Musset, poetry by Baudelaire and Verlaine, and fiction by Flaubert, Camus, and Robbe-Grillet. For a description of methodology, see 31.231.

31.243 French Literature in the Splendid Century (Prereq. 31.232 or equiv.) **4 Q.H.**

This course presents a study of the nondramatic literature of seventeenth-century France from the baroque through the classical periods. The

course studies a rich and diverse body of writing encompassing philosophy, poetry, the table, the novel, and epistolary writing. Among the authors treated are Descartes, Pascal, La Rochefoucauld, La Fontaine, Boileau, Mme. de Sevigne, and Mme. de La Fayette. Offered every other year.

31.244 French Theatre in the Splendid Century 4 Q.H.
(Prereq. 31.232 or equiv.)

This course offers a study of the dramatic literature of seventeenth-century France, from the baroque through the classical periods. Tragedy is studied in the works of Corneille and Racine; comedy, in those of Molière. Offered every other year.

31.245 French Literature of the Eighteenth Century I 4 Q.H.
(Prereq. 31.232 or equiv.)

The eighteenth century in France, known as the Age of Enlightenment, was an age of challenge to established authority in all areas, and an age of changing ideas and ideals. This intellectual and political vitality is reflected in the representative works of Marivaux, Montesquieu, Prevost, and Voltaire. Class discussions, oral and written reports. Conducted in French, but English is allowed. Offered every other year.

31.246 French Literature of the Eighteenth Century II 4 Q.H.
(Prereq. 31.232 or equiv.)

Toward the latter half of the century we begin to see both the achievements brought about by the spirit of enlightenment and at the same time the awakening of the romantic sensibility, particularly in such authors as Diderot, Rousseau, St. Pierre, Laclos, and Beaumarchais. Class discussions, oral and written reports. Conducted in French, but English is allowed. Offered in alternate years.

31.247 French Literature of the Nineteenth Century I 4 Q.H.
(Prereq. 31.232 or equiv.)

Romanticism is treated as a major cultural phenomenon affecting man's view of his world and the way he expresses experience. In this context, the course examines romanticism in poetry and drama, as well as its continuation into the realist novel. Among the authors read are Victor Hugo in poetry and the drama, and Honoré de Balzac in the novel. In addition there are selections from other writers who represent aspects of romanticism and realism. Conducted principally in French. Offered every other year.

31.248 French Literature of the Nineteenth Century II 4 Q.H.
(Prereq. 31.232 or equiv.)

This course deals with the reaction against romanticism: aestheticism and personal modes of expression in contrast to the enthusiasm of

the early romantics. The course deals with a novel by Gustave Flaubert and the verse of Charles Baudelaire in *Les Fleurs du mal*, and the poets who followed in Baudelaire's footsteps. Flaubert and Baudelaire are seen as precursors of modern literature. Conducted principally in French. Offered every other year.

31.249 French Literature of the Twentieth Century I 4 Q.H.
(Prereq. 31.232 or equiv.)

This course offers a study of the major movements in the narrative and dramatic prose writers prior to World War II, including Alain-Fournier, Proust, Claudel, Gide, Mauriac, and Saint-Exupéry. Students are required to read a work from each author, discuss it in class, and present oral and written reports. Conducted in French, but English may be used. Offered in alternate years.

31.250 French Literature of the Twentieth Century II 4 Q.H.
(Prereq. 31.232 or equiv.)

This course focuses on the trends in postwar fiction, with particular consideration of the struggle of man to find meaning in an absurd world. Analysis of significant works by Giraudoux, Montherlant, Sartre, Camus, Anouilh, Ionesco, and Beckett. Oral and written reports, class discussions. Conducted in French, but English may be used. Offered in alternate years.

31.252 The Theme of Solitude in French Literature 4 Q.H.

Course conducted in English. Texts read in English translation (those who wish to do so may read them in French.) The multiple facets of the theme of solitude are traced from the beginnings of French literature to that of the present. Viewed as both a source of wonder and anguish, solitude is studied in its various manifestations, including banishment, imprisonment, expatriation and seclusion. The phenomena of moral and spiritual solitude is examined as well. Among authors studied are Charles d'Orleans, Du Bellay, Rousseau, Chateaubriand, Hugo, Verlaine, Mauriac, and Camus.

31.255 Masterpieces of Modern European Fiction 4 Q.H.

This course is conducted in English and focuses on modern European authors, including Dostoevski, Mann, Kafka, Proust, Gide, and Camus. Their works are viewed as commentaries on their respective societies and, more generally, as investigations of the human condition.

31.280 Seminar: Critical Methodology and Practice in French Literature 4 Q.H.

(Prereq. Excellent reading knowledge of French)
The seminar treats one modern French writer in terms of a critical methodology developed in the

first part of the seminar based on modern critical practice.

31.281 Seminar: Trends in Modern French Literature 4 Q.H.

(Prereq. Excellent reading knowledge of French) The seminar examines a trend in modern French literature and develops a critical methodology useful for this analysis.

31.282 French Seminar: Voltaire and Rousseau 4 Q.H.

This course offers an opportunity to study and compare the two great figures of the 18th century. Through an analysis of their works, students may determine how, by their contrasting interests, personalities, and views of society, these writers contributed to fundamental changes in the political, philosophical, and literary world of their time—and ours. Class discussion, oral and written reports. Conducted in English. Offered in alternate years.

31.290, 31.291, 31.292, 31.293, 31.294 Directed Study 4 Q.H.

Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors, and to juniors and seniors.

31.295, 31.296, 31.297, 31.298 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Spanish

Prerequisites listed for Modern Languages are based on current course numbers at Northeastern. Equivalent course work done elsewhere may be considered acceptable to satisfy these prerequisites.

32.200 Intensive Spanish 8 Q.H.

This course encompasses the same material covered in 32.201 and 32.202. Students with language-learning ability and a commitment to the study of foreign languages are encouraged to take the course. Students are expected to assimilate the material at an accelerated pace. This is a two-sequence course; students *must* enroll in *both* sequences. Satisfactory completion of this course enables the student to take 32.203 if he/she wishes.

32.201 Elementary Spanish I 4 Q.H.

The course includes presentation of essentials of correct usage through acquisition of basic skills in reading, writing, speaking, and aural comprehension.

32.202 Elementary Spanish II 4 Q.H.
(Prereq. 32.201 or equiv.)

Continuation of language instruction with increasing attention to vocabulary and skills relevant to persons who wish to become involved with the Hispanic world.

32.203 Intermediate Spanish I 4 Q.H.
(Prereq. 32.202 or equiv.)

Included are completion of basic grammatical usage. Reading of contemporary Hispanic plays; oral and written communication based upon assigned readings.

32.204 Intermediate Spanish II 4 Q.H.
(Prereq. 32.203 or equiv.)

The course offers intensive reading of topics of current interest; conversation practice utilizing skills acquired in previous course work; and composition practice based upon varied assigned topics.

32.209 Conversational Spanish I 4 Q.H.
(Open to nonmajors only)
(Prereq. 32.204 or equiv.)

Emphasis is on helping students develop the ability to speak and comprehend Spanish. Particularly able students may be accepted after having completed only 32.203. In this case, 32.209 may be used to satisfy the language requirement.

32.210 Conversational Spanish II 4 Q.H.
(Open to nonmajors only)
(Prereq. 32.209 or equiv.)

Continuation of 32.209, with continuing emphasis on the development of oral facility in Spanish. Particularly able students may be accepted after having completed only 32.204.

32.215 Backgrounds in Hispanic Culture I 4 Q.H.

A multimedia approach is utilized to present the rich panorama of the humanities from Altamira to modern times. A reading knowledge of Spanish is helpful, but not required, as the course is conducted in English. Field trips, concerts, guest speakers, and individual study projects enhance this exploration of Spanish creativity.

32.216 Backgrounds in Hispanic Culture II 4 Q.H.

This course spans the time from pre-Columbian days to the present in Latin America, exploring culture, traditions, and attitudes. A multimedia approach with field trips and guest lecturers. Conducted in English.

32.217 Saints and Sinners: The Vision of Women in the Middle Ages and the Renaissance 4 Q.H.

Topics include the attainment of and the atonement for love; society's changing attitude toward women as reflected in the literature of the times. Selected fabliaux, short stories, poems, and plays from Boccaccio, Chaucer, Ruiz, Rojas, Machiavelli, Lope de Vega, Calderon, Quevedo, Racine, Middleton, as well as women writers. Reference is made to

historical and sociological materials. This course is offered in English. All required readings are in translation.

32.227 Spanish Composition and Conversation I (Prereq. 32.204 or equiv.) **4 Q.H.**

This course offers practice in writing and speaking Spanish, including written and oral resúmenes, prepared speeches and themes, and impromptu speaking and writing. A review of the more subtle problems of grammar.

32.228 Spanish Composition and Conversation II (Prereq. 32.227 or equiv.) **4 Q.H.**

This course offers further practice in oral and written Spanish; continued study of problems of advanced Spanish grammar.

32.229 Advanced Spanish Proficiency I **4 Q.H.** (Prereq. consent of instructor)

This course is designed for those preparing to enter the teaching profession, as well as qualified advanced students. Advanced elements of Spanish syntax, with emphasis upon achieving superior speaking, reading, and writing skills.

32.230 Advanced Spanish Proficiency II **4 Q.H.** (Prereq. 32.229 and consent of instructor)
Continuation of aims and goals of 32.229.

32.231 Masterpieces of Spanish Literature I (Prereq. 32.204 or equiv.) **4 Q.H.**

An introductory course tracing the development of Spanish literature from its beginnings in the Middle Ages (las jarchas, *El poema del Cid*, *El libro de buen amor*, *La Celestina*, etc.) through the Renaissance and Baroque period or Golden Age (Garcilaso de la Vega, the picaresque novel, the mystics, Cervantes, Lope de Vega, Calderon, etc.). Classes are conducted in Spanish.

32.232 Masterpieces of Spanish Literature II (Prereq. 32.204 or equiv.) **4 Q.H.**

A continuation of 32.231, surveying the literature of 18th-, 19th-, and 20th-century Spain. Included are the literary movements of romanticism, realism, and the generation of '98. Classes are conducted in Spanish.

32.239 Spanish Literature of the Middle Ages (Prereq. 32.232 or equiv.) **4 Q.H.**

The course offers selections from the major works of the Middle Ages, from the *Poema del Cid* to the *Libro de buen amor*. Conducted in Spanish.

32.241 Spanish Literature of the Fifteenth and Sixteenth Centuries **4 Q.H.**

(Prereq. 32.232 or equiv.)
This course examines selections from the major works of the fifteenth and sixteenth centuries. Some of the works to be considered are *La Celestina*, *Lazarillo de Tormes*, and *El Romano-cero*. Conducted in Spanish.

32.243 Cervantes and His Times **4 Q.H.** (Prereq. 32.232 or equiv.)

The course examines selections from Cer-

vantes' minor works (the *Entremeses* and the *Novelas ejemplares*), with emphasis on *Don Quixote*, Spain's greatest literary masterpiece. Conducted in Spanish.

32.244 Spanish Golden Age Theatre **4 Q.H.** (Prereq. 32.232 or equiv.)

The course examines plays by the outstanding dramatists of the 17th century: Lope de Vega, Calderon de la Barca, Tirso de Molina, Ruiz de Alarcon, and others. Conducted in Spanish.

32.247 Spanish Literature of the Nineteenth Century I **4 Q.H.** (Prereq. 32.232 or equiv.)

The course includes readings in the prose, poetry, and drama of the romantic period, including selections from el Duque de Rivas, Larra, Espronceda, Zorrilla, and Becquer. Conducted in Spanish.

32.248 Spanish Literature of the Nineteenth Century II **4 Q.H.** (Prereq. 32.232 or equiv.)

This course offers a study of some of the major novelists of the second half of the 19th century, such as J.M. de Pereda, Juan Valera, Emilia Pardo Bazan, and B. Perez Galdos. Conducted in Spanish.

32.249 Spanish Literature of the Twentieth Century **4 Q.H.** (Prereq. 32.232 or equiv.)

The course examines selections from the writings of the Generation of '98: Unamuno, Valle-Inclan, Pio Baroja, Benavente, Azorin, and the Machado brothers.

32.250 Spanish Literature of the Twentieth Century **4 Q.H.** (Prereq. 32.232 or equiv.)

The course focuses on prose and poetry of modern writers, such as Ortega y Gasset, Perez de Ayala, Garcia Lorca, Juan Ramon Jimenez, Gironella, and Jose Cela.

32.251 Latin-American Literature **4 Q.H.** (Prereq. 32.232 or equiv.)

The course focuses on early Latin-American literature; the literature of the colonial period and the early nineteenth century, based primarily on selections from an anthology.

32.252 Latin-American Literature **4 Q.H.** (Prereq. 32.232 or equiv.)

This course focuses on modern Latin American literature; readings from nineteenth- and twentieth-century prose and poetry.

32.280 Spanish Seminar **4 Q.H.**

This course is designed primarily for majors who have progressed to the upper-level literature courses in Spanish. However, non-majors who show exceptional background may be admitted with the instructor's permission. The course focuses upon a narrowly defined theme (i.e., a single author, a single work, or a single theme), which students are asked to explore in depth;

students are expected to present a final paper based upon individual research.

32.281 Seminar in Spanish Literature 4 Q.H.
(Prereq. Consent of instructor)

This is an upper-level literature course, designed primarily for majors, although nonmajors who show exceptional background in Spanish may be admitted. Students are expected to read a selected group of Galdos' novels, and the class meetings will concentrate on a detailed discussion and analysis of the works read. There are collateral readings as well, and a final paper on a topic to be selected by the student.

32.282 Seminar in the Contemporary Spanish Theatre 4 Q.H.
(Prereq. 32.232 or permission of instructor)

In contrast to the typical bourgeois theatre of consumption in Spain, there exists a number of dramatists committed to revealing the tragic social and existential aspects of the human condition. Emphasis is placed on authors such as Vallejo, Sartre, the members of the *generacion realista* and the "underground" playwrights. Classes are conducted in Spanish. Class participation as well as oral and written projects required. Alternates yearly with 32.281.

32.290, 32.291, 32.292, 32.293, 32.294 Directed Studies (each) 4 Q.H.

Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors, and to juniors and seniors.

32.295, 32.296, 32.297, 32.298 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior honors Program on page 5.

German

Prerequisites listed for Modern languages are based on current course numbers at North-eastern. Equivalent course work done elsewhere will be considered acceptable to satisfy these prerequisites.

33.201 Elementary German I 4 Q.H.

This course is designed to provide instruction in the basic grammatical structure of German through practice in listening comprehension, speaking, reading, and writing. Instruction is provided in the classroom and in the language laboratory. No previous study of German necessary. (Special sections of this course are run for business students.)

33.202 Elementary German II 4 Q.H.
(Prereq. 33.201 or equiv.)

A continuation of 33.201, this course emphasizes helping students to increase their knowledge of the basic grammatical structure of German and develop additional flexibility in the four language skills. (Special sections of this course are run for business students.)

33.203 Intermediate German I 4 Q.H.
(Prereq. 33.202 or equiv.)

This course offers a comprehensive review and reinforcement of the major aspects of German grammar and usage; continues to explore the four major skills of listening comprehension, speaking, reading, and writing; introduces the student to the reading of contemporary literary texts, including a full-length play—*Biedermann und die Brandstifter* by the Swiss playwright Max Frisch.

33.204 Intermediate German II 4 Q.H.
(Prereq. 33.203 or equiv.)

The course aims at helping students enlarge vocabulary and develop increased flexibility in the four basic language skills. Included are completion of grammar review, continued exposure to modern literary texts. One full-length play is read—*Der Besuch der alten Dame*, by the contemporary Swiss dramatist Friedrich Dürrenmatt. Successful completion of this course entitles the student to choose from among the upper-level course offerings in the areas of German literature and/or composition and conversation.

33.207 Reading German 4 Q.H.

This course is designed for those students who wish to develop their reading skills, without regard to other aspects of the language, such as speaking or writing. The grammar necessary for reading is stressed, together with vocabulary building; and scientific and nonscientific texts are read. This course may provide assistance to students, graduate and undergraduate, who need to pass a reading examination to fulfill specific degree requirements.

33.227 German Composition and Conversation I 4 Q.H.
(Prereq. 33.204 or equiv.)

This course strives to develop facility in speaking and writing German and stresses active use of the language. Students are provided an opportunity for practice in listening comprehension through German language films or tape-recorded interviews with native German speakers; expansion of vocabulary through guided group discussions on topics of general interest; and development of language skills in areas of individual interest through preparation of oral reports in German. Compositions are assigned on a weekly basis and grammar is reviewed as needed. Utilization of language laboratory. Recommended for students preparing for co-op in Germany.

33.228 German Composition and Conversation II (Prereq. 33.227 or equiv.) **4 Q.H.**

Continuation of German 33.227 in content and format with emphasis on independent communication skills. Recommended for students preparing for co-op in Germany.

33.229 Advanced German Proficiency I **4 Q.H.** (Prereq. 33.227, 33.228, or consent of instructor)

The course offers intensive training in spoken and written German with the aim of providing students an opportunity to increase vocabulary and develop flexibility in the use of the language. Included are student-led discussions of German society and current affairs based on readings of current journals and periodicals; weekly written assignments; review and practice of grammar where necessary.

33.231 Masterpieces of German Literature I(Prereq. 33.204 or equiv.) **4 Q.H.**

The course includes a survey of the major trends in the development of German literature from the *Hildebrandslied* to Martin Luther. In addition, reading of selected works of major authors of the 20th century such as Hauptmann, Kafka, Mann, Brecht, Durrenmatt, and Boll. Choice of works to be read in a particular term will be based partially on theatre performances of film showings planned in the Boston area. Class attendance of these performances is anticipated. Recommended as an introductory step to literature courses 33.245 and above. Offered every other year, alternating with 33.232.

33.232 Masterpieces of German Literature II(Prereq. 33.204 or equiv.) **4 Q.H.**

This course includes a survey of the major trends in the development of German literature from Martin Luther to the present, including selected works of major authors of the 19th and 20th centuries. Choice of works to be read in a particular term will be based partially on theatre performances or film showings planned in the Boston area. Class attendance of these performances is anticipated. Recommended as an introductory step to literature courses 33.245 and above. Offered every other year, alternating with 33.231. May be taken before 33.231.

33.235 Applied Linguistics**4 Q.H.**

The course explores the process of language learning and the nature of this experience for infants and adults. Emphasis is on the child's ability to successfully master the complex essentials of its first language by the age of five, and how the development of cognitive capacity and language-learning ability are related. The role of the parent and of the physical environment will also be discussed. Other topics include second-language learning, contrastive analysis, learning English as a second language or dialect, Sign language, the significance of "errors," learning strategies, and a survey of language-teaching methods.

33.245 Classical Period of German Literature(Prereq. 33.232 or equiv.) **4 Q.H.**

The course provides background and general survey of the period from 1750 to 1800, with particular emphasis on the works of Lessing and Schiller. Among the dramas read are Lessing's *Minna von Barnhelm* and *Nathan der Weise*; and Schiller's *Maria Stuart* and *Die Jungfrau von Orleans*. Lectures (in German) and reports.

33.248 The Works of Goethe**4 Q.H.**

(Prereq. 33.232 or equiv.)

The course includes drama, prose writing, and lyric poetry of Goethe, *Faust*, Part I, *Hermann und Dorothea*, *Egmont*, and *Iphigenie auf Tauris*. Lectures (in German) and reports.

33.247 German Literature of the Nineteenth Century**4 Q.H.**

(Prereq. 33.232 or equiv.)

The course offers background and general survey of German literature of the nineteenth century, with particular attention to prose and lyric poetry. The lyric poetry includes poems of all the important romantic poets, beginning with Holderlin, Tieck, Novalis, and extending through Morike. Among the prose works discussed are Novellen by Eichendorff, Tieck, Chamisso, Kleist, Fougue, Keller, Meyer, and Ludwig. Lectures (in German) and reports.

33.248 German Drama of the Nineteenth Century(Prereq. 33.232 or equiv.) **4 Q.H.**

Dramas read are selected from Germany's foremost dramatists of the nineteenth century, including Kleist, Hebbel, Grillparzer, and Ludwig. Lectures (in German) and reports.

33.249 German Literature of the Twentieth Century**4 Q.H.**

(Prereq. 33.232 or equiv.)

The course includes lyric poetry and prose works of important German writers of the twentieth century, including Schnitzler, Hauptmann, Mann, and Kafka. Lectures (in German) and reports.

33.250 German Drama of the Twentieth Century**4 Q.H.**

(Prereq. 33.232 or equiv.)

Plays are selected from those by important dramatists of the twentieth century, including Schnitzler, Hauptmann, Sudermann, Hofmannsthal, Wedekind, Kaiser, Toller, and Brecht. Lectures (in German) and reports.

33.251 The German Lyric**4 Q.H.**

(Prereq. 33.232 or equiv.)

The course offers a survey of the German lyric from the twelfth century to the present. Analysis and interpretation of representative selections from major lyric poets such as Walther von der Vogelweide, Gerhard, Fleming, Gryphius, Klopstock, Claudius, Goethe, Schiller, Holderlin, Eichendorff, Brentano, Heine, Morike, Storm, Meyer, Rilke, and Brecht. Background of the

development of the German lyric, movements, and types. Class discussions and reports.

33.252 The Dramatic Works of Franz Grillparzer (Prereq. 33.232 or equiv.) **4 Q.H.**

The course includes reading, analysis, and interpretation of representative works of Franz Grillparzer, Austria's greatest dramatist: *Sappho*, *Des Meeres und der Liebe Wellen*, *Der Traum ein Leben*, *König Ottokars Glück und Ende*, and the novella, *Der arme Spielmann*. Collateral readings, discussions, and reports.

33.290, 33.291, 33.292, 33.293, 33.294 Directed Studies **4 Q.H.**

Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors, and to juniors and seniors.

33.295, 33.296, 33.297, 33.298 Junior-Senior Honors Program (each) **4 Q.H.**

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Russian

Prerequisites listed for Modern Languages are based on current course numbers at North-eastern. Equivalent course work done elsewhere will be considered acceptable to satisfy these prerequisites.

34.201 Elementary Russian I **4 Q.H.**

The course includes essentials of grammar, practice in pronunciation, progressive acquisition of a basic vocabulary, idiomatic expressions.

34.202 Elementary Russian II **4 Q.H.**
(Prereq. 34.201)

Continuation of grammar study; oral and written exercises.

34.203 Intermediate Russian I **4 Q.H.**
(Prereq. 34.202)

Designed to help further the student's knowledge of Russian through oral and written work; the study of grammar and reading texts of moderate difficulty.

34.204 Intermediate Russian II **4 Q.H.**
(Prereq. 34.203)

Continuation of work and aims of 34.203.

34.207 Scientific Russian **4 Q.H.**
(Prereq. 34.204 or equiv.)

The course offers readings of Russian texts in mathematics, physics, chemistry, astronomy, biology, and medical science. Designed to help prepare the student for the departmental reading examination in his/her chosen field. As

far as possible, texts are selected on the basis of the students' needs and interests.

34.215 Backgrounds In Russian Culture **4 Q.H.**
Designed to offer the student a view of Russian culture and civilization, the course utilizes guest speakers, films, field trips, and discussions. Conducted in English.

34.217 The Works of Alexander Pushkin in Translation **4 Q.H.**

This course offers a survey and analysis in English of Pushkin's artistic prose, lyric poetry, correspondence, friendships, and major literary influences.

34.218 Russian Literature In Translation **4 Q.H.**
A companion to 34.217, this is a survey and analysis in English of some of the works of Tolstol, Dostoevski, Chekhov, and others.

34.227 Russian Composition and Conversation I (Prereq. 34.204 or equiv.) **4 Q.H.**

Designed to assist students in developing skills in speaking and writing by means of detailed grammar review and extensive use of audiovisual media. Conducted in Russian.

34.228 Russian Composition and Conversation II (Prereq. 34.227 or equiv.) **4 Q.H.**

A continuation of 34.227 with an increased emphasis on speaking the colloquial Russian idiom. Conducted in Russian.

34.229 Advanced Russian Proficiency I **4 Q.H.**
(Prereq. 34.228 or equiv.)

Emphasizes speaking and writing skills through the study of Russian word formation and derivation. Weekly compositions or oral reports are required. Conducted in Russian.

34.230 Advanced Russian Proficiency II **4 Q.H.**
(Prereq. 34.229 or equiv.)

Emphasizes speaking and writing skills through the study and use of Russian idioms and colloquialisms. Conducted in Russian.

34.233 Stylistics and Advanced Grammar Analysis I **4 Q.H.**

(Prereq. 34.204 or consent of instructor)
Designed for students pursuing a major or minor in the Russian language; focuses on modern usage of the Russian language through newspaper and magazine articles and short stories.

34.234 Stylistics and Advanced Grammar Analysis II **4 Q.H.**

(Prereq. 34.233 or consent of instructor)
Continues goals of 34.233 and also focuses on helping students improve listening comprehension through the use of extensive laboratory work.

34.247 Russian Short Stories of the Nineteenth Century **4 Q.H.**

(Prereq. 34.204 or equiv.)
The course offers detailed analysis of selected representative short stories read in Russian; study of the development of this genre.

34.251 Russian Expository Prose 4 Q.H.
(Prereq. 34.204)

Selected readings of lectures, speeches, essays, and critical studies by outstanding Russian scholars.

34.253 Russian Folklore 4 Q.H.
(Prereq. 34.204)

Various genres of Russian folk literature are read in Russian. Readings are supplemented with lectures and tape recordings.

34.254 Russian Poetry 4 Q.H.
(Prereq. 34.204)

The major works of important classical and modern poets are read in Russian and analyzed.

34.290, 34.291, 34.292, 34.293, 34.294 Directed Studies 4 Q.H.

Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors, and to juniors and seniors.

34.295, 34.296, 34.297, 34.298 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Italian

Prerequisites listed for Modern Languages are based on current course numbers at North-eastern. Equivalent course work done elsewhere will be considered acceptable to satisfy these prerequisites.

35.201 Elementary Italian I 4 Q.H.

For the beginner who wants instruction in the essentials of Italian grammar and the opportunity to practice speaking and reading the language.

35.202 Elementary Italian II 4 Q.H.
(Prereq. 35.201 or equiv.)

Continued study of grammar and basic language skills. Practice in more advanced conversation and reading.

35.203 Intermediate Italian I 4 Q.H.
(Prereq. 35.202 or equiv.)

Review of grammar. Progressively more intensive practice in oral and written communication. Reading will be from selected modern texts.

35.204 Intermediate Italian II 4 Q.H.
(Prereq. 35.203 or equiv.)

Review of grammatical difficulties, with attention given to current idiomatic forms. Greater emphasis on self-expression. Reading of short stories or a modern novel.

35.217 The Works of Dante in Translation I

4 Q.H.

This course considers briefly the cultural background and various literary schools that influenced Dante. His life, his character, and minor works are discussed. The *Vita Nuova* and the first cantica of the *Divina Commedia*, the "Inferno," are read and analyzed in some detail. This course is intended for students of any background or major. Bilingual texts are used so that students with a background in Italian, and others, may refer to the original for added interest and enrichment. Classes are conducted in English.

35.218 The Works of Dante in Translation II

4 Q.H.

This is a continuation of 35.217, but may be taken separately. The other two parts of the *Divina Commedia*, "Purgatorio" and "Paradiso," are studied in detail. The course is open to anyone. Bilingual texts used. Classes conducted in English.

35.227 Italian Composition and Conversation I

(Prereq. 35.204 or equiv.) 4 Q.H.

For students who have mastered the fundamentals of the language. There will be no study of grammar as such. The course aims at helping students strengthen speaking and writing ability through an analysis of the language, oral and written reports, and general discussions on a variety of topics. Conducted entirely in Italian.

35.228 Italian Composition and Conversation II

(Prereq. 35.227 or equiv.) 4 Q.H.

Continuation of 35.227, with stress on individual work, free discussions, and compositions. Conducted entirely in Italian.

35.231 Masterpieces of Italian Literature I 4 Q.H.

(Prereq. 35.204 or equiv.)

Introductory course in Italian literature covering the *Trecento* to the seventeenth century. An analysis will be made of major trends and writers beginning with the *dolce stil nuovo*, Dante's *Vita Nuova*, and continuing with readings from Petrarca's *Canzoniere*, Boccaccio's *Decameron* and Machiavelli's *La Mandragola*. Discussion of the readings, oral and written reports. Conducted basically in Italian, but students are allowed to express themselves in English.

35.232 Masterpieces of Italian Literature II

(Prereq. 35.204 or equiv.) 4 Q.H.

Continuation of 35.231, but may be taken separately. This course concentrates on authors from the eighteenth to the twentieth centuries, such as Goldoni, Leopardi, Verga, Pirandello, Moravia, Levi and Buzzati. A novel, a play, or poetry selections from each author will be discussed. Oral and written reports. Conducted basically in Italian, but students may use English.

35.249 Italian Literature of the Twentieth Century I 4 Q.H.

(Prereq. 35.232 or equiv.)

Reading and discussion of some of the novels, plays, and poems from a variety of literary trends and styles that evolved between the turn of the century and World War II. Among the authors studied are Verga, Pascoli, D'Annunzio, Pirandello, Deledda, and Svevo. Oral and written reports. The course will be conducted basically in Italian, but students may use English. Offered in alternate years.

35.250 Italian Literature of the Twentieth Century II 4 Q.H.

(Prereq. 35.232 or equiv.)

The postwar period to the present. Many important authors have arisen since the early forties, and their books reflect the preoccupations, moods, and aspirations of our changing times. Among the writers considered in this course are Moravia, Silone, Vittorini, Pavese, Guareschi, Buzzati, Sciascia, Ungaretti, Montale, and Quasimodo. Oral and written reports are required. English may be used, but the course will be conducted basically in Italian. Offered in alternate years.

35.280 Italian Seminar: Pirandello 4 Q.H.

By viewing reality in man's world and man's personality with strikingly new insights, Pirandello contributed a new dimension to our understanding of human nature and brought about significant changes to the traditional conception of the theatre. This course examines the originality and art of Pirandello by a close study of some of his great plays and short stories. Class discussions, oral and written reports. Conducted in English. Offered in alternate years.

35.290, 35.291, 35.292, 35.293, 35.294 Directed Studies 4 Q.H.

Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors, and to juniors and seniors.

35.295, 35.296, 35.297, 35.298 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Portuguese**36.101 Elementary Portuguese I** 4 Q.H.

Essentials of grammar; practice in pronunciation; progressive acquisition of a basic vocabulary and idiomatic expressions.

36.102 Elementary Portuguese II 4 Q.H.

(Prereq. 32.101 or equiv.)

Continuation of grammar studies, oral and written exercises.

American Sign Language**36.200 Intensive American Sign Language I** 8 Q.H.

(Formerly 19.200)
This course combines the coursework of ASL I and ASL II into one quarter. In this structure, students may accelerate the development of basic conversational skills in ASL.

36.201 American Sign Language I 4 Q.H.

(Formerly 19.196)
An introduction to American Sign Language and deaf culture, this course focuses on frequently used signs, basic rules of grammar, nonmanual aspects of ASL, and some cultural features of the deaf community.

36.202 American Sign Language II 4 Q.H.

(Formerly 19.199)
(Prereq. 36.201 or consent of instructor)
A continuation of basic language and culture study, this course offers an opportunity to build receptive and expressive sign vocabulary. Study includes use of the signing space; further use of nonmanual components, including facial expression and body postures. Introduction to finger spelling.

36.203 Intermediate American Sign Language I 4 Q.H.

(Formerly 19.204)
(Prereq. 36.202 or consent of instructor)
This course emphasizes further development of receptive and expressive skills, finger spelling, vocabulary building, grammatical structures; encourages more creative use of expression, classifiers, body postures, and the signing space; introduces regional and ethnic sign variations, and political and educational institutions of the Deaf community.

36.204 Intermediate American Sign Language II 4 Q.H.

(Formerly 19.206)
(Prereq. 36.203 or consent of instructor)
The course consists of intensive practice involving expressive and receptive skills in storytelling and dialogue; introduction to language forms used in ASL poetry, and to the features of culture as they are displayed in art and the theatre.

36.205 Sign Language Interpreting I 4 Q.H.

(Formerly 19.205)
(Prereq. 36.204 or consent of instructor)
This is the first of a three-course sequence involving the theoretical and practical aspects of simultaneous interpretation of English into sign language and vice versa. Through lectures, discussions, and role playing, students are introduced to ethics, definitions, client-interpreter, relationships, linguistic con-

siderations, mechanics, and special considerations for various interpreting situations.

36.206 Sign Language Interpreting II 4 Q.H.
(Formerly 19.211)

(Prereq. 36.205 or consent of instructor)

Lectures, discussions and role playing emphasize topics that include ethics, roles, fees, and Registry of Interpreters for the Deaf (R.I.D.) certification procedure. Laboratory work focuses on increasing skills in simultaneously interpreting English to sign language and *vice versa*.

36.207 Sign Language Interpreting III 4 Q.H.
(Formerly 19.212)

(Prereq. 36.206 or consent of instructor)

This course is designed for students who have completed the equivalent of Sign Language Interpreting I and II, and wish to upgrade their skills. Laboratory work focuses on interpreting ASL into English and *vice versa*, and transliterating spoken English into manual English.

36.213 Methods and Materials in American Sign Language Instruction 4 Q.H.
(Formerly 19.213)

(Prereq. 36.204, 36.132, 19.154)

This course offers a study of the theories of second-language learning and teaching as applied to ASL, and existing approaches to ASL instruction, with focus on materials, activity selection, utilization and selection of instructional media, and evaluation techniques.

36.215 Deaf Culture 4 Q.H.
(Formerly 19.132)

(Prereq. 36.201)

Course focuses on the status of deaf people as a linguistic and cultural minority group. Topics include the role of American Sign language in the deaf community; educational and historical perspectives on deafness; and sociological and cultural make-up of the deaf community.

Speech Communication

37.102 Effective Speaking 3 Q.H.
(Formerly 29.102)

(Prereq. Industrial engineering students only; speech communication for specific purposes)

Designed to help provide the student with a basic understanding of the communication process and its function as a means of relating to the world, ourselves, and other people, the course examines factors in intra- and interpersonal communication, group communication, and public speaking through lectures, discussions, structured learning experiences, and written assignments.

37.106 Speech Fundamentals 3 Q.H.
(Formerly 29.106)

(Prereq. Recreation majors only; speech communication for specific purposes)

This course is designed to give the student an opportunity to develop a basic understanding of the communication process and its function as a means of relating to the world, ourselves, and other people. It examines factors in intra- and interpersonal communication, group communication, and public speaking through lectures, discussions, structured learning experiences, and written assignments.

37.109 Effective Speaking Workshop 2 Q.H.
(Formerly 29.113)

(Prereq. Civil engineering students only)

This course is designed to give the student an opportunity to acquire a basic understanding of the communication process and its function as a means of relating to the world, ourselves, and other people. It examines factors in intra- and interpersonal communication, group communication, and public speaking through lectures, discussions, structured learning experiences, and written assignments.

37.110 Voice and Articulation 4 Q.H.
(Formerly 29.110)

The course includes the study of voice technique: emphasis on pitch, projection, articulation, and vocal variety. A combination of theory and practical application.

37.111 Oral Interpretation 4 Q.H.
(Formerly 29.111)

The course focuses on application of basic vocal techniques to the dramatic reading of prose, poetry, and drama. Through literary analysis the author's meaning is understood and, by means of oral reading skills, communicated to an audience.

37.115 Introduction to Communication Skills 4 Q.H.
(Formerly 29.129)

This course is designed to give the student an opportunity to develop a basic understanding of the communication process and its function as a means of relating to the world, ourselves, and other people. It examines factors in intra- and interpersonal communication, group communication, and public speaking through lectures, discussions, structured learning experiences, and written assignments.

37.116 Business and Professional Speaking 4 Q.H.
(Formerly 29.108)

The course focuses on practice on oral presentations, group communication, conference and discussion techniques, interview methods, and occasion speaking. The course combines performance aspects with case study methods of communication on the professional level.

37.131 Introduction to Communication Theory 4 Q.H.
(Formerly 29.119)

This course is designed to offer basic knowledge and understanding of the processes involved in the transference of meanings. From

the problems involved in defining communication, through a discussion of the nature of communication, various models of communication are examined. The nature of theory and requirements of adequate theory are discussed, leading to an examination of various theories of human communication, including psychological, sociological, information and system theories.

37.150 The Mass and the Media 4 Q.H.
(Formerly 29.127)

This is an introductory course designed to explore the many media through which man expresses himself: radio-television, film, print, music. Attention is paid to the role of the individual as a media consumer.

37.212 Advanced Vocal Techniques 4 Q.H.
(Formerly 29.112)

(Prereq. 37.110 or consent of instructor)
Development and application of vocal technique acquired in 37.110. Emphasis on vocal analysis, flexibility, and regional patterns of speech.

37.214 Advanced Oral Interpretation 4 Q.H.
(Formerly 29.114)

(Prereq. 37.111)
Opportunity to further develop oral reading skills acquired in 37.111. In addition, the course includes work with accents and dialects, study of reader's theatre, and an investigation of classical and modern philosophies of the art.

37.230 Interpersonal Communication I 4 Q.H.
(Formerly 29.141)

This is a conceptual, theoretical course designed to help increase awareness of the communication process. The course provides an examination of the ways in which we relate to other individuals and factors which influence these processes.

37.231 Interpersonal Communication II 4 Q.H.
(Formerly 29.142)

(Prereq. 37.230 or permission)
The course focuses on application of concepts developed in Interpersonal Communication I. It is an experiential course, exploring ways of becoming more aware of one's self and one's relationships with others and offering an examination of various options for communicating and increasing knowledge of the group process. Enrollment limited.

37.232 Female/Male Communication 4 Q.H.
(Formerly 29.143)

The course surveys the various dimensions of female-male relationships as they are created, sustained, or disintegrated through communication transactions. Emphasis will be on the various images and stereotypes of male and female sexual identity as they affect and are affected by communication in the development of hostility, friendship, or intimacy. Temporary, permanent, and destructive female-male relations will be examined as they lead to alternate life styles.

37.236 Theories of Persuasion 4 Q.H.
(Formerly 29.115)

The course surveys theoretical and conceptual approaches and research pertaining to the effectiveness of communication which is deliberately intended to induce changes in attitudes, beliefs, values and/or behavior.

37.237 Persuasive Techniques 4 Q.H.
(Formerly 29.116)

(Prereq. 37.236 or permission)
The course offers a critical, in-depth analysis of instances of persuasion as they occur in social interaction, social movements, politics, and advertising; identification of practical strategies employed; and the factors which influence the effectiveness of those strategies when persuaders attempt to influence others.

37.238 Group Discussion 4 Q.H.
(Formerly 29.117)

Working in task groups, students are expected to explore theory and research in the area of group dynamics and apply their knowledge to the classroom experience as they work on developing skills in decision making, problem solving, membership, and leadership.

37.239 Argumentation and Debate 4 Q.H.
(Formerly 29.105)

An applied course designed to help develop skills in rational decision making through advocacy. Attention is given to logical reasoning, psychological methods and motivational techniques.

37.240 Contemporary Public Address 4 Q.H.
(Formerly 29.128)

The course offers a critical study of the public address of leading contemporary speakers, representative of important political and social movements. This course seeks to help the student gain an appreciation of the dimensions and varieties of contemporary public address, broadly defined as symbolic discourse. From an understanding of various theories and approaches to public address, rhetorical situations are examined; and the use of agitative and control strategies to accomplish social change is critically evaluated.

37.241 Theories of Audience Behavior 4 Q.H.
(Formerly 29.133)

Surveying theoretical models, concepts, and research, the course focuses on the role of the receiver as an active participant in the communication process. Topics covered include individual information processing, listening as a learned behavior, intra-audience effects, relationships between media and audience characteristics, dissemination and rumors and information, and the development of societal norms and mores.

37.244 Communication in Education 4 Q.H.
(Formerly 29.118)

Through lectures, discussions, and performance projects, several activities are investigated: conference and discussion techniques in decision-making situations; teaching techniques; personal interviews; collective bargaining; and various speech situations involving the teacher's several audiences.

37.250 Broadcast Production 4 Q.H.
(Formerly 29.144)

(Prereq. 37.150 or permission)

The course introduces the student to the equipment of a broadcast studio, surveys broadcast production techniques, and provides opportunities, in class, for applied practice through the production of programming suitable for broadcast.

37.252 Producing and Directing for Radio 4 Q.H.
(Prereq. Consent of instructor)

The course centers around the role of the producer/director in the creation, pre-production planning, and execution of local and network radio programs. Emphasis is on live broadcasts, and live assembly of partially pre-recorded programs. A great deal of time will be spent on the written materials necessary for program planning. The class will spend some time in the studio working on model program production and, possibly, actual live music performance broadcasts.

37.254 Special Topics In Broadcasting 4 Q.H.
(Formerly 29.145)

(Prereq. 37.150 or permission)

This course introduces the student to the variety of roles played by broadcast professionals, and the interplay of professional functions integral to the broadcast industry. The focus is on a different aspect of the broadcast industry each term.

37.270 Consultation Skills 4 Q.H.
(Formerly 29.140)

(Prereq. 37.131, 37.115, 37.230, and 37.238)

The course is designed to instruct students in the skills necessary for analyzing communication difficulties in industry, organizations, and groups. The course includes theory, discussion, practice, and feedback, using a case study method.

37.271 Introduction to Communication Research 4 Q.H.
(Formerly 29.281)

(Prereq. 37.131 or permission)

The course provides an introduction to scientific method and epistemology as it applies to the investigation of communication phenomena. The course is structured to assist students in finding and critically evaluating literature dealing with factors which influence the effectiveness of communication and which may be pertinent to either academic projects or managerial decision making.

37.285 Special Topics in Speech Communication 4 Q.H.
(Prereq. Consent)

The course provides an in-depth examination of a subject of particular significance to the field.

37.290; 39.291 Directed Study (each) 4 Q.H.

37.295 Internship in Speech Communication 4 Q.H.

This course provides a student with the opportunity to gain academic credit for on-the-job training in a career field allied to the academic field. Enrollment requires prior approval by a departmental committee, demonstration that the job allows opportunities to apply theoretical understanding to specific application in the work environment, and faculty advisement as well as on-the-job supervision.

Journalism

Minimum prerequisites for all courses in Journalism are 30.113 and 30.114 or their equivalent.

38.100 Interpreting the Day's News 4 Q.H.

Course focuses on study of the news of the day and the function of the newspaper, news magazine and news broadcasts in American life. Topics include rights and responsibilities of the press, as well as how the news is gathered, processed and disseminated by the various media. For nonmajors as well as majors.

38.101 History and Principles of Journalism 4 Q.H.

(Prereq. Junior standing or consent of instructor)

Development of American journalism from European and English beginnings. The problems and contributions of the "Colonial Press," the Revolutionary War period, the "Party Press," the "Penny Press" and the leading contributions to

early American journalism. The evolution of freedom of the press and the concurrent responsibility of the press media. Some writing required.

38.102 History and Principles of Journalism 4 Q.H.
(Prereq. 38.101)

A continuation of 38.101 from mid-nineteenth century. America's great personal journalists and mass circulation "giants" and their contributions: Greeley, Bennett, Raymond, Dana, Grady, Nelson, Ochs, White, Medill, Pulitzer, Hearst, Scripps, Howard, McCormick, and others. The relationships of journalism to such events as the Civil War, the Spanish-American War; the unfolding principles. Some writing required.

38.103 Fundamentals of Newswriting 4 Q.H.
(Prereq. 30.113, 30.114, or equiv.)

Functions of the editorial department and procedures in obtaining and writing news stories. Extensive practice in writing news stories.

38.104 Fundamentals of Newswriting 4 Q.H.
(Prereq. 38.103 or consent of instructor)

The course focuses on problems of reporting and newswriting with written assignments in various types of spot news reporting.

38.105 Techniques of Journalism 4 Q.H.
(Prereq. 38.104 or consent of instructor)

The course offers advanced practice in writing news stories along with editorials, feature stories, criticisms, and other assignments.

38.108 Editing 4 Q.H.
(Prereq. 38.105)

Course focuses on editing the news with practice in copy editing and headline writing. Assignments include keeping copy flow charts, photo selection and cropping, and page dummyming.

38.107 Law of the Press 4 Q.H.
(Prereq. 38.106; Journalism seniors only)

The course explores the role of the press media in American society, both conceptually and practically. Conceptually, the meaning of freedom of the press is explored through study and discussion of the evolving First-Amendment interpretations of the United States Supreme Court. Practically, a study project requires each student to make an intensive analysis of an individual newspaper in the context of the particular segment of society that it serves.

38.108 Law of the Press II 4 Q.H.
(Prereq. 38.107)

The role of the press media in American society continued, with particular reference to the legal problems of libel, slander, and invasion of privacy; the balance between private rights and the public's "need to know"; the ethical responsibilities of the press media. A study project involving a practical media problem is required.

38.112 Magazine Writing 4 Q.H.
(Prereq. 38.104)

The course focuses on writing and free-lancing magazine articles; analyzing magazines as markets; selecting the best feature format—how-to-do-it, profile, personal experience, human interest or celebrity interview, success story, interpretive or investigative pieces, and others.

38.120 Radio News Gathering and Reporting 4 Q.H.

Course concentrates on principles of writing and editing news for radio, with practice in interviewing, organizing news scripts, integrating audio materials into broadcasts, and on-air delivery.

38.121 Television Newswriting 4 Q.H.
(Prereq. Consent of instructor)

The course examines techniques of writing for television news as opposed to writing for other

news media. Included are the marriage of script to various video outputs; importance of the writer-reporter in his/her new roles both as a field-producer and a writer-producer; terms and language used in the production of TV news shows. Actual individual production of student news shows; field trips to TV stations; guest lecturers from the TV news media.

38.122 Television News Production 4 Q.H.
(Prereq. Consent of instructor)

The course offers an in-depth study of the techniques and language used by the electronic journalist and the TV news producer. The students will have the opportunity to learn how to build a TV news show based on studies of sight, sound, and motion derived from film, videotape, slides, photos, tape recorders, and other tools used world-wide in television news production.

38.130 Advanced Reporting 4 Q.H.
(Prereq. Consent of instructor)

All over the country, increasing numbers of special teams are being utilized to handle investigative reporting. This course covers the daily press, but also delves into the techniques used by radio-TV, the underground press, wire services, suburban weeklies, and magazines. Students are expected to participate in a selected controversial project and produce a series for publication and broadcast.

38.132 Local Government Reporting 4 Q.H.
(Prereq. 38.104)

This course focuses on coverage of town/city government, with emphasis on the "beat" approach to reporting public affairs. Practical, in-the-field experience is emphasized in such projects as town meetings, meetings of boards of selectmen, and other commissions and bodies transacting public business. Course also covers the functions and terminologies of administrative offices and the mechanics of figuring and reporting on tax rates.

38.135 Journalism and the Mass Media 4 Q.H.

The course includes a series of seminars featuring well-known professionals from major newspapers, radio-TV stations, wire services, magazines, photography, and public relations. An up-to-date, in-depth exploration of techniques and theories used in various media. Instructors include many award winners and even Pulitzer Prize recipients. The course is sponsored by the New England Chapter of Sigma Delta Chi, society of professional journalists, for the benefit of its journalism scholarship program at the University.

38.140 Graphic Arts Principles 4 Q.H.

The course examines principles and techniques of layout and design as applied to newspapers, publications, direct mailers, and other forms of printed media. Analysis of copy, type, illustrative material, and methods of blending them together into comprehensive form.

38.150 Advertising Principles**4 Q.H.**

Topics include development, procedures, economic functions and responsibilities of advertising: planning, research, production, and other elements which go into successful advertising.

38.151 Advertising Copy Writing**4 Q.H.**

The course covers theory and techniques of creating advertising copy for newspapers, magazines, radio, television and direct mail. Fact gathering, copy structure, and advertising design are emphasized.

38.152 Advertising Practice**4 Q.H.**

The course focuses on preparation of advertising for print and broadcast media, including campaign planning and space and time buying and scheduling. Product research, consumer surveys, and measuring the effects of advertising are covered.

38.160 Public Relations Problems**4 Q.H.**

Problems are examined concerning the various publics that need to be considered. Included are a study of problem solving and preventative measures, and various types of media.

38.161 Public Relations Practice**4 Q.H.**

The course focuses on specific practices and techniques employed in the field, including organization of events and functions and the

relationships with the media and the public; review of publicity techniques.

38.170 Senior Seminar**4 Q.H.**

Course focus is on discussions and readings on topics of current significance in various journalistic fields. Each student is expected to make an intensive analysis of an individual newspaper in the context of the particular segment of society it serves. Course is required of all majors in their senior year.

38.201 Basic Photojournalism**4 Q.H.**

(Prereq. 38.103)

This course is designed to give students the opportunity to acquire a basic knowledge of how to "tell a story" through a camera. Elementary darkroom procedures will be covered along with cropping, assignment techniques, classroom theory, and photo caption methods.

38.290 Honors In Journalism**4 Q.H.****38.291 Directed Study In Journalism****4 Q.H.****38.295 Honors In Journalism****4 Q.H.**

(Prereq. Juniors and Seniors only)

38.296 Honors In Journalism**4 Q.H.**

(Prereq. Juniors and Seniors only)

38.297 Honors In Journalism**4 Q.H.****38.298 Honors In Journalism****4 Q.H.**

(Prereq. Juniors and Seniors only)

Economics

Unless otherwise stated there are no prerequisites for advanced economics courses. Exceptions are made at the discretion of the instructor.

39.105 Principles of Economics**4 Q.H.**

Topics include development of macroeconomic analysis; review of national income concepts; national income determination, fluctuation, and growth; role of the banking system and the Federal Reserve System; government expenditures and taxation; international trade; balance of international payments.

39.106 Principles of Economics**4 Q.H.**

The course focuses on the role of a market pricing system, demand and supply, in determining the allocation of resources to competing uses, and why this system may not function adequately in certain areas. Study includes the application of economic principles to private and public problems in such areas as pollution, poverty, and racial discrimination.

39.115 Principles and Problems of Economics**4 Q.H.**

The course offers an introduction to the conceptual aspects of economics; the flow of national income; economic growth and fluctuation; the role of money and banking; monetary and fiscal policies. Emphasis is on assisting students in developing conceptual tools for use in

the analysis of economic problems facing modern society.

39.116 Principles and Problems of Economics**4 Q.H.**

The course focuses on development of basic theory of demand, supply, and market price. Applications to selected microeconomic problems such as basic economics of monopoly and competition, poverty, race and discrimination, urban affairs, pollution, and other problems which relate to the role of the pricing system in resource allocation and income distribution.

39.130 Medical Economics**4 Q.H.**

The course includes examination and discussion of the following topics: health-care trends in the United States, causes for increases in medical-care costs, supply and training of health-care personnel, the nation's need for physicians, nurses, pharmacists, and other allied health personnel, the quality of medical care, economics of health insurance plans, consumer demand for health care, medical facilities, professional personnel, and semiprofessional personnel.

39.140 Economics of Crime**4 Q.H.**

The course offers theoretical and empirical

analysis of the economic causes of criminal behavior. The social costs of crime and its prevention will be covered, and techniques for designing optimum law enforcement policies will be developed.

30.150 Economics of World Energy and Primary Resources 4 Q.H.

This course investigates economic, political, and historical backgrounds of the energy and other resources problems. Future impact of primary resources limitations on United States and world economics are analyzed. Feasibility studies of resource substitution.

39.155 Superpower Economics 4 Q.H.

This course offers an analysis of the relative economic structure and strength of the United States, the Soviet Union, Japan, and the Common Market and China, as well as the economic relations among these powers. The course also examines the impact of these relations on the domestic economies of the superpowers and of the developing nations of the world.

39.190, 39.191 Directed Study (each) 4 Q.H.

This course offers independent work under the direction of a member of the Department on a chosen topic. Limited to qualified seniors majoring in Economics, with approval of Department.

39.241 Local Labor Market Analysis and Human Resource Planning 4 Q.H.

(Prereq. 39.115 and 39.116 or 39.105 and 39.106, 39.275 strongly recommended)

This course helps acquaint the student with a variety of methods and data sources for analyzing conditions in regional, state, and local labor markets to determine the extent, nature, and causes of human resource problems and to utilize that information in planning and designing appropriate employment and training strategies. Topics will include empirical analysis of state and local labor force developments, unemployment and poverty problems, the industrial and occupational composition of employment, wage structures, and trends in state and local income distributions, as well as methods for planning employment and training programs at the state and local levels.

39.242 Economics of Education and Training 4 Q.H.

(Prereq. 39.115 and 39.116 or 39.105 and 39.106, 39.279 strongly recommended)

This course provides a theoretical and empirical treatment of a variety of economic issues related to education and job training programs, including formal education (secondary and post-secondary), vocational education, on-the-job training, and CETA-related employment and training programs. Emphasis will be placed upon the use of analytical techniques for determining the effectiveness of education and training investments from a private and social standpoint, including the design of follow-up

studies, cost-effectiveness analysis, and benefit-cost analysis.

39.250 Statistics I 4 Q.H.

Topics include elementary set theory; basic probability; measurement and presentation of economic statistics; descriptive statistics; basic estimation techniques; testing statistical hypotheses and sampling problems.

39.251 Statistics II 4 Q.H.
(Prereq. 39.250)

Topics include analysis of variance; correlation and linear regression analysis; multivariate regression analysis; and Bayesian decision-making.

39.253 Accounting Data for Social Scientists

(Prereq. 39.115 and 39.116 or 39.105 and 39.106 or instructor's approval) 4 Q.H.

This course is designed to familiarize nonaccountants with the basic techniques and procedures of private and public accounting. Topics include developing and interpreting income statements and balance sheets, asset turnover, key accounting ratios, capital budgeting, cost flow analysis, and present value determinations. The course also compares and contrasts the treatment of macro and micro accounting data.

39.254 Managerial Economics 4 Q.H.
(Prereq. 39.116 or 39.106)

This course emphasizes the application of economic principles and theory, by the use of case studies, to the solution of problems of decision making in such areas as demand forecasting, price policies, estimation and control of costs, financing of capital investments, and responses to government taxation and regulation policies.

39.255 Microeconomic Theory 4 Q.H.
(Prereq. 39.106, 39.116 or equiv.)

A detailed study of supply-and-demand analysis, various elasticity concepts and applications, theory of consumer demand, theory of production, derivation of cost curves. Detailed analyses of pricing and output behavior in the several market structures with their welfare implications; the pricing of resources.

39.256 Macroeconomic Theory 4 Q.H.
(Prereq. 39.105, 39.115, or equiv.)

Investigation of the conceptual and empirical problems of creating and using national accounts; price index problems; conceptual and empirical evaluation of several consumption and investment functions, and their policy implications; multiplier and accelerator models; a brief history of recent cyclical fluctuations. Theories of inflation and growth are analyzed in the light of recent economic history.

39.259 European Economic Development 4 Q.H.
Economic inheritance of the nineteenth-century development of capitalism and laissez-faire. The aftermath of the Industrial Revolution, European

overseas expansion, the twentieth century, the world wars, the dissolution of empires, American economic conquest and European integration, the future of less developed areas in southern Europe. Environmental impact of industrialism and the implications of technological society.

39.260 American Economic Development 4 Q.H.
Economic development of the United States from the colonial period to the present; historical changes in available factors; economic institutions and technologies; special attention to preconditions of industrialism. The American Industrial Revolution, its spread and socio-economic consequences. The Great Depression and the subsequent rise of mixed economy and welfare state; U.S. adjustments to postwar economic changes.

39.261 Economic History of Less Developed Countries 4 Q.H.
The problems of initiating and sustaining growth in selected third-world countries during the last two-hundred years, with emphasis on traditional vs. contemporary economic development. Role of Western society; impact of technological and structural changes; relations between states and economic enterprises.

39.262 Government Expenditures: Structure and Evaluation 4 Q.H.
(Prereq. 39.106, 39.116, or equiv.)
Fiscal functions of government, fiscal institutions and politics, theory of social goods, public expenditure growth and structure, the federal budget expenditure evaluation and cost-benefit case studies, fiscal federalism in theory and practice.

39.263 Financing of Government: Taxation and Debt 4 Q.H.
(Prereq. 39.106, 39.116, or equiv.)
Principles of taxation, problems of tax structure and reform, major names at federal, state, and local levels, tax burden incidence, effects of taxation on economic efficiency and growth, negative income tax and social security finance, issues of public debt, public enterprise pricing, international tax coordination, taxation in developing countries.

39.265 Money and Banking 4 Q.H.
(Prereq. 39.105, 39.115, or equiv.)
The nature and function of money, credit, and monetary standards, and the role of our monetary and banking system in the economy. Topics include commercial banking, monetary theory and policy, the role and instruments of the Federal Reserve System, and international monetary problems.

39.267 Economics of Urban Transportation 4 Q.H.
Transportation and land-use patterns; externalities; social costs and social benefits of various

modes of urban transportation; ownership, regulations, and financing of various modes of transportation; economies of new technology in urban transportation.

39.268 Urban Economics 4 Q.H.
Study of urban growth and development, inter-metropolitan location of business firms, regional shifts in economic activity, intra-metropolitan location of firms and households, and land use patterns.

39.269 Urban Economic Problems and Policies 4 Q.H.
Sequel to Urban Economics. Economic analysis of selected urban problems such as housing, poverty, transportation, education, health, crime and the urban environment. Discussion of public policies relating to such problems.

39.271 Social Control of Economic Activities 4 Q.H.
Development of the government's role in economic activities, examining the relationship between the government and industry, labor, agriculture, public utilities, and consumers. The course will trace the changing role of the government from a laissez-faire policy to one of direct intervention in the economy. Current topics such as wage and price control, environment and antipollution policies, consumer protection, and conglomerate mergers will be discussed.

39.273 Industrial Organization and Public Policy 4 Q.H.
(Prereq. 39.255)
The theoretical framework for analysis and evaluation of the static and dynamic performance of real markets. An examination of the empirical studies testing the usefulness of applying theory to real markets. An examination of antitrust as a public policy designed to promote better market performances.

39.275 Labor Economics 4 Q.H.
Examination of the economics of the labor market and the labor force and of the institutions and policies dealing with them; employment, unemployment, wage determination, income distribution, and the development and efficient use of labor resources; development of trade unions; collective bargaining issues and their economic consequences.

39.277 Economics of the Quality of Urban Environment and Control 4 Q.H.
Economic analysis of air, water, thermal, and noise pollution; the utilization of urban space and other urban resources; identification of possible economic effects of urban environment, such as crime, delinquency, immobility, and congestion.

39.278 Income Inequalities and Discrimination 4 Q.H.
Economic analysis of income inequalities and incidence of poverty. Examination of forces contributing to income inequality and poverty;

economics of racial discrimination; public welfare system, and other income maintenance schemes.

39.279 Employment and Training Programs and Policies **4 Q.H.**

Objectives of employment and training programs; efforts to improve the labor market position of impoverished groups; economic evaluation of employment and training programs; planning for local labor markets and future needs.

39.280 Comparative Economics **4 Q.H.**

Competing types of theoretical economic systems; analysis of organization and operation of currently existing types of communist, socialist, and capitalist economies; comparison and evaluation of economic behavior and performance of different economic systems.

39.281 Introduction to Mathematical Economics (Prereq. 39.115 or 39.105; 39.116 or 39.106; 10.105) **4 Q.H.**

Functional analysis, matrix algebra, differential calculus and optimization—mathematics and elementary economic applications.

39.282 Mathematical Economics **4 Q.H.** (Prereq. 39.281 or consent of instructor)

For economics, mathematics, business, and engineering students interested in a broad coverage of economic analysis using mathematical techniques as tools. Topics include models of the firm, demand theory, input-output, and other planning and policy models of the national economy.

39.283 Labor Market Position of Women and Sex Discrimination **4 Q.H.**

Economic analysis of the labor market position of women in light of the changing structure of the economy of the United States, and of the institutional setting. Analysis of female labor participation, unemployment, wage differentials, occupational concentration and occupational segregation. Theories and evidence of sex discrimination. New opportunities open to women.

39.285 Development Economics **4 Q.H.**

Prospects for economic growth and development in poor nations as indicated by economic analysis and historical experience: social, cultural, and institutional determinants of growth; analysis of agriculture and development, the role of technological change, population, and foreign trade.

39.286 International Economics **4 Q.H.** (Prereq. 39.106, 39.116 or equiv.)

Introduction to the theory of international trade and its role in resource allocation; implications of economic welfare; foreign exchange; the balance of payments mechanism; and problems of disequilibrium and adjustment.

39.288 Business Cycles and Inflation **4 Q.H.** (Prereq. 39.105 or 39.115; 39.106 or 39.116; 39.256)

A study of the theories of business cycles and inflation and an empirical application of these theories to current business cycle, inflation, and stagflation problems.

39.289 Advanced Economic Theory **4 Q.H.** (Prereq. 39.255 and 39.256)

The course provides advanced theoretical treatment of selected topics in micro- and macro-economics. Recommended for students planning to take graduate economics.

39.291 Senior Economic Seminar **4 Q.H.** (Prereq. 39.255 and 39.256)

This is a course for senior economics majors, coordinating and applying economic concepts, methodology, and data to contemporary issues and problems of broad social, economic, and philosophical importance.

39.292 History of Economic Thought **4 Q.H.**

This course provides comprehensive study in the development of economic thought. Coverage includes mercantilism as the first economic doctrine; analysis of older classical school, its later refinements (modern marginalism), and its important critics (socialists, Marxists); Keynesian and modern developments.

39.293 Introduction to Econometrics **4 Q.H.** (Prereq. 39.105 or 39.115; 39.106 or 39.116; and 39.251)

The course focuses on the methods of econometric estimation and forecasting. Coverage includes topics in various statistical techniques. Students are given the opportunity to construct their own models and use computer facilities for estimation and forecasting.

39.294 Problems in Economic Research **4 Q.H.** (Prereq. 39.105 or 39.115; and 39.106 or 39.116; and 39.251)

This course examines research methods of practicing economists with typical problems from applied areas of economics and choice of modeling framework; problems of data collection, review of estimation techniques and interpretation of results; development of static and dynamic adaptive policy models.

39.295, 39.296, 39.297, 39.298 Junior-Senior Honors Program (each) **4 Q.H.**

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 5.

Accounting

41.111 Accounting Principles I 4 Q.H.

This first of a series of accounting courses assumes students do not possess knowledge of the subject. Both this course and 41.112 are designed to help provide an understanding of accounting issues and objectives for proper interpretation and analysis of financial data. Specific topics covered in this first course are 1) the nature, function, and environment of accounting; 2) the basic accounting model; 3) financial and analytical ratios; 4) the accounting cycle; 5) accounting for merchandising entities; and 6) the control of cash and receivables.

41.112 Accounting Principles II 4 Q.H. (Prereq. 41.111)

The second of a series of accounting courses. Students are introduced to financial and managerial accounting decisions through class discussions, short exercises, and demonstration problems. Specific topics covered include 1) control of inventory; 2) acquisition, depreciation, and disposal of plant and equipment; 3) paid-in capital related to sole proprietorships, partnerships, and corporations; 4) short- and long-term debt financing; 5) the analysis and interpretation of financial reporting; and 6) the statement of changes in financial position.

41.118 Principles of Accounting 8 Q.H.

This course covers the content of courses 41.111 and 41.112 and is primarily intended for transfer students.

41.205 Cost Accounting for Management 4 Q.H. (Prereq. 41.112)

This course offers an examination of cost accounting from a managerial viewpoint. The impact of quantitative and behavioral aspects on budgets and cost control is stressed. This course is designed specifically for management majors.

41.210 Introduction to Accounting—A. & S. 4 Q.H.

(Not open to College of Business Administration students)

Specifically for arts and sciences majors, this course is designed to help provide a fundamental knowledge of accounting to students who do not expect to become accountants but would like the opportunity to learn to understand, interpret, and make use of accounting data. The course surveys the foundations of accounting and the role it plays in the management of the profit and nonprofit sectors of the American economy.

41.251 Intermediate Accounting I 4 Q.H. (Prereq. 41.112 or equiv.)

The principle foundation course for accountants begins with a comprehensive review of basic accounting principles, operations, and financial statements. Development of accounting theory

is stressed in the analysis of alternative treatments and procedures. Specific areas receiving intensive treatment are cash, accounts receivable, inventories, and current liabilities.

41.252 Intermediate Accounting II 4 Q.H. (Prereq. 41.251)

This course is a continuation of the study of accounting principles, concepts, and procedures. Specific topics emphasized are long-term assets, depreciation, stockholders equity and EPS.

41.253 Cost Accounting I 4 Q.H. (Prereq. 41.112)

This course examines cost determination and use. Special consideration is given to manufacturing concerns. Specific coverage includes cost behavior, relevant costs, performance evaluation, budgets and standard costs.

41.254 Cost Accounting II 4 Q.H. (Prereq. 41.253)

This course is a continuation of 41.253 (Cost Accounting I) and gives special attention to the use of cost data in decision making, budget planning, and the control process.

41.255 Intermediate Accounting III 4 Q.H. (Prereq. 41.252)

This course completes the study of basic accounting concepts and covers special areas of concern to modern accounting practice. Leases, pensions, accounting changes, and income tax accounting, changes in financial position, price-level and current-value accounting are studied.

41.257 Auditing 4 Q.H. (Prereq. 41.255)

Designed for the student who plans to enter the public accounting profession, this course examines audit concepts, standards and procedures including the auditor's legal and ethical responsibilities. Emphasis is on concepts rather than procedures. Specific areas covered are auditing standards, auditor's reports, internal control, statistical sampling, EDP, and legal liability.

41.260 Federal Income Taxes I 4 Q.H. (Prereq. 41.255 or 41.112)

This course stresses basic understanding of the federal income tax structure relating to individuals rather than to corporations. Students are required to complete several research cases directed at solving various tax problems. Case studies introduce the student to the current Internal Revenue Code, income tax regulations, and cumulative bulletins. Tax court cases and various private company publications are discussed.

41.262 Accounting Theory and Practice 4 Q.H. (Prereq. 41.255)

Objectives are to examine 1) the theory and practice of corporate financial reporting and some of the controversial areas in accounting; 2) the pronouncements and research studies of the authoritative institutions of the profession relating to the practice of accounting; 3) the textual and periodical literature on accounting theory.

41.263 Accounting Planning and Control 4 Q.H.
(Prereq. 41.254)

This course provides an examination of the role of management planning and control systems and problems inherent in their design and use, and defines the process of identifying factors in the design of these systems.

41.264 Advanced Accounting Problems 4 Q.H.
(Prereq. 41.255)

This course is an in-depth analysis of various accounting topics for the student planning a career as a professional accountant. Topics covered are government and not-for-profit accounting; partnerships; installment sales; consignments; segment and interim reporting; foreign currency accounting; troubled debt restructurings; and liquidations, estates and trusts.

41.265 Management Accounting 4 Q.H.
(Prereq. 41.263)

This course examines the role of the management accountant. Topics include relationships between financial and managerial accounting, design and use of accounting and control systems, measurement techniques and uses, the role of behavior in accounting, performance evaluation, and other topics of current interest.

41.269 Advanced Accounting Problems II 4 Q.H.
(Prereq. 41.255 or permission of instructor)

This course is a comprehensive analysis of the accounting theory and practice associated with corporate acquisitions and combinations. Topics include methods of consolidation-elimination of profits on intercompany transactions, purchase versus pooling of interests, and accounting for goodwill. The course is intended

for the serious student preparing for a career as a professional accountant.

41.272 Internal Auditing 4 Q.H.
(Prereq. Middler standing)

This course is designed to aid students in understanding how the internal auditor undertakes a review and appraisal of operations. Study will focus on the internal audit environment, preparation of long-range programs, the performance of preliminary surveys, flowcharting, the development of audit programs, sampling, audit techniques, and reporting. The course is case-study oriented.

41.273 Federal Income Taxes II 4 Q.H.
(Prereq. 41.260)

This course is a continuation of 41.260 (Federal Income Taxes I), focusing on taxpayers other than individuals and the treatment of those property transfers subject to federal, gift, estate and trust taxes. Tax research is an important element of this course. A major emphasis is given to tax planning considerations, especially to gift and death tax consequences.

41.274 Accounting Systems 4 Q.H.
(Prereq. Middler standing)

This course examines the process of designing both financial and managerial accounting systems. The approach is conceptual, and the course considers the use of computer technology in designing new systems where computers are appropriate. The course assumes an understanding of accounting processes in both financial and managerial areas.

41.275 Computers in Accounting and Auditing 4 Q.H.
(Prereq. 41.257 or 41.272)

This course examines the use of computers in accounting and auditing. Topics include systems design and applications in accounting; internal control of computer-based systems; computer audit and control guidelines; and EDP audit tools and techniques.

Marketing

43.120 Introduction to Marketing 4 Q.H.
(Prereq. Middler standing)

This course consists of lectures, readings, and small group discussions on the role of marketing in contemporary society, in the business enterprises, and in the nonprofit organization. Consideration is given to the planning, operation, and evaluation of marketing and promotional efforts necessary to the effective marketing of consumer and industrial products and services in both profit and nonprofit organizations.

43.122 Workshop in Negotiations 4 Q.H.
(Prereq. Junior or senior standing)

The objective of this course is to aid students in

improving their understanding of the negotiations process and their ability to plan and conduct negotiations effectively. Class activities involve readings, lectures and discussions, as well as numerous case discussions and live and videotaped role-play negotiation exercises.

43.228 Marketing for Nonprofit Organizations 4 Q.H.
(Prereq. Middler standing)

This course examines the unique characteristics of marketing in public and nonprofit enterprises. It aims to expand the scope of marketing management concepts beyond the traditional setting of business. Particular attention is paid to the basic decision-making differences be-

tween public and private firms. The course involves case analysis, assigned readings, and a group project.

43.235 Marketing Channels 4 Q.H.
(Prereq. 43.120 or consent of instructor and junior or senior standing)

This course studies marketing structures and institutions: their evolution, functions, inter-relationships, and the management of their role in the marketing process.

43.236 Retail Merchandising and Control 4 Q.H.
(Prereq. 43.120 or consent of instructor)

This course examines the concepts and techniques of store operations and merchandise management. Topics such as calculating and planning markups and markdowns, pricing, inventory control, stock turn, open-to-buy, profitability analysis, and expense control are considered.

43.237 Retail Strategies and Problems 4 Q.H.
(Prereq. 43.120 and junior or senior standing or consent of instructor)

This course considers strategic and policy decisions of major retail enterprises engaged in food, apparel, and general merchandise distribution. The evolution of retail institutions is analyzed along with the characteristics of and prospects for new store types.

43.240 Marketing Research 4 Q.H.
(Prereq. 43.252)

This course focuses on the survey research process and the analysis of data using "canned" computer programming routines. Among the topics covered are 1) problem definition; 2) research design; 3) sampling techniques; 4) questionnaire development; 5) data collection methods; and 6) data analysis. Students are expected to work on group projects with participating firms. No previous computer experience required.

43.242 Sales Management 4 Q.H.
(Prereq. 43.252)

This course is designed to help the student develop decision-making skills necessary for both building and maintaining an effective sales organization. Cases and readings are used to examine the strategic and operating problems of the sales manager. Major topic areas include the selling function; sales management at the field level; and the sales executive.

43.244 Quantitative Methods in Marketing 4 Q.H.
(Prereq. 49.251)

This course focuses on statistical methods and techniques commonly used in the analysis and interpretation of survey and experimental data. "Canned" computer programs will be used extensively to illustrate the applicability of the methods discussed. No previous computer experience required.

43.252 Marketing Management 4 Q.H.
(Prereq. 43.120)

This course is designed to provide training in marketing decision making. Case studies, simulating actual business settings, are used to help students develop analytical abilities and sharpen their communications skills. Topics covered range from techniques used to analyze a market to the development of a total marketing strategy (product policy, pricing policy, promotion policy, and distribution policy).

43.261 International Marketing 4 Q.H.
(Prereq. 43.120)

This course is designed to help familiarize the student with those aspects of marketing which are unique to international business within the framework of traditional functional areas of marketing. The focus is on the environment and the modifications of marketing concepts and practices necessitated by environmental differences. Topics include cultural dynamics in international markets, political and legal environmental constraints, educational and economic constraints, international marketing research, international marketing institutions, and marketing practices abroad.

43.262 Advertising Management 4 Q.H.
(Prereq. 43.252)

This course focuses on the management of the advertising function in relation to a firm's overall marketing objectives. The course approaches the subject from the perspective of the user of advertising (e.g., product manager, marketing manager). Case studies and text material are used to help the student develop decision making skills.

43.265 Industrial Marketing 4 Q.H.
(Prereq. 43.252)

This course examines the marketing of products where business firms are the potential customers. Upper-class elective, open to juniors and seniors.

43.266 Marketing in the Service Sector 4 Q.H.
(Prereq. 43.120)

The course provides a basic treatment of methods and techniques for marketing in the service sector, which includes sports, recreation, public service, banking, insurance, and hotels. In addition to the principles covered, a number of descriptive studies will be analyzed covering the application of such marketing principles in key service areas.

43.271 New Product Development 4 Q.H.
(Prereq. 45.112)

For most firms, coping with the problems of environmental change through modification of the product line is both vital and difficult. This seminar is primarily concerned with the examination and analysis of the problems firms

face in directing and managing their new product development activities.

43.275 Foundations of Consumer Behavior 4 Q.H.
(Prereq. 43.252)

This course is concerned with helping students develop an understanding of consumer attitudes and behavior processes as the basis of the design of marketing problems. Consideration is given to economic and behavioral models of

consumer behavior and to underlying behavioral theories and concepts.

43.278 Competitive Strategy 4 Q.H.
(Prereq. 43.252)

A capstone marketing course, required of all students with a marketing concentration. The focus is on the formulation of marketing strategy at a policy level and its implementation in a dynamic environment.

Finance and Insurance

44.120 Introduction to Finance 4 Q.H.
(Prereq. 41.111, 41.112, and middler standing)

The objective of this course is to acquaint students with basic processes, principles, tools and concepts of finance. Topics include financial analysis; financial forecasting; profit planning; budgeting; working capital management; and capital budgeting. The course also covers the basics of financial markets, institutions, and sources of supply of different types of funds available to a firm.

44.122 Taxes and Financial Decisions 4 Q.H.
(Prereq. 39.105 and middler standing)

In this course, the case method is used to discuss a number of financial decisions which are greatly influenced by tax considerations, the most important of which are concerned with capital structure, dividend policy, acquisition terms, investment policies, and liquidations. The federal income tax receives primary consideration, but state and foreign taxes are also discussed.

44.130 Seminar in Financial Futures 4 Q.H.
(Prereq. 44.120)

This is a seminar in commodity futures markets centered in the area of financial futures with special emphasis on interest rate futures. The course covers the methods of trading, margins, hedging, spreading futures contracts in Treasury Bills, Commercial Paper, Treasury Bonds, Treasury Notes, GNMA's, etc. Students prepare a seminar report on some aspect of the futures market.

44.144 Management of Financial Institutions 4 Q.H.
(Prereq. 44.120)

This course offers a broad study of the decision-making problems faced by financial institutions such as commercial banks, savings and investment institutions, and finance companies when viewed as competitive, profit-seeking business entities. Topics include the nature and scope of the capital markets confronting institutions, specialized problems regarding the sources and uses of funds of financial institutions, the nature of competition, the regulation of financial institutions, and strategic policy planning of financial institutions.

44.145 Securities Markets 4 Q.H.
(Prereq. 44.120)

This course aims to analyze the operation of the securities market. Striking a balance between descriptions analysis, the course provides students the opportunity to examine in detail the operation and function of investment bankers, broker-dealers, and securities exchanges. There is a thorough study of the mechanics of cash and margin accounts, trading options, and regulations affecting securities markets.

44.154 Managerial Finance 4 Q.H.
(Prereq. 44.120)

The objective of the course is to provide students the opportunity to gain knowledge of the advanced tools and concepts used in the management of funds. Topics include inventory and credit policies, risk, capital budgeting, financial structure, cost of capital, dividend policy, and valuation of a firm. Overall financial strategy and timing of its implementation are also examined. Specialized topics—mergers and acquisitions, financial failure, and financial policy for multinational firms—may be considered in the course.

44.159 Small Business Finance 4 Q.H.
(Prereq. 44.120)

This course investigates the financial requirements of smaller businesses and the special sources of funds open to them. Methods of financial control in the small business are covered, as well as requirements of financing institutions. The problem of obtaining adequate equity financing and equity sources is highlighted.

44.160 International Financial Management 4 Q.H.
(Prereq. 44.120)

This course introduces students to the international financial environment. Subjects include balance of payments, exchange rates, Eurocurrencies, foreign capital markets, etc. The financial policies and practices of companies involved in multinational operations are considered. Specific topics studied include capital budgeting, capitalization policies, the use of Eurocurrency and Eurobond markets, and foreign exchange risk management by the international firm.

44.162 A Risk Management Approach to Property and Casualty Insurance 4 Q.H.
(Prereq. 44.120)

The concepts of risk, uncertainty, risk management, and insurance are introduced. A comprehensive analysis of property and casualty insurance markets and products is presented from a buyer's perspective. Principal emphasis is placed on defining and analyzing alternative methods of treating risk in a business enterprise. The course discusses different risk management strategies and analyzes practical situations.

44.171 Real Estate Finance Analysis and Investment 4 Q.H.
(Prereq. 44.120)

This course provides students with a comprehensive overview of real estate finance. Factors affecting real estate investment are emphasized. Specific topics covered include valuation (appraisal), market analysis, development, ownership types, short-term financing, mortgage markets, the impact of inflation on real estate investment and finance, and investment strategies. The course is designed for students interested in a general overview of real estate finance, as well as those intending to pursue further studies in the real estate subfield. Instruction is primarily through readings, lectures, and case discussions.

44.172 Entrepreneurial Decision-Making in Real Estate 4 Q.H.
(Prereq. 44.171)

This course provides an overview of property acquisition, development, and management from an entrepreneurial perspective. Topics include planning; financing; cost control and management of construction; marketing; and joint ventures. All major land uses are considered. Instruction is primarily through lectures and case discussions. Some class sessions may be devoted to guest speakers from the real estate community.

44.173 Real Estate Finance and Investment Strategies 4 Q.H.
(Prereq. 44.171)

The objective of this course is to provide students the opportunity to acquire knowledge and skills for decision making in the context of organizational real estate investment strategies. Five general topical areas are covered: 1) measurement of risk and yield on real estate debt and equity investments; 2) comparison of the risk and return in real estate investments with other types of investments; 3) traditional and innovative financing techniques; 4) management of a real estate portfolio; and 5) development and implementation of real estate investment strategies. Instruction is primarily through lectures, readings and case discussions.

44.181 Investment Management 4 Q.H.
(Prereq. 44.120 and 49.251)

This course offers a broad overview of the concepts, practices, and procedures of investment management. Areas covered include basic security types, security market operations, security analysis—both fundamental and technical—and an introduction to portfolio management.

44.185 Long-term Financial Management 4 Q.H.
(Prereq. 44.120 and 44.154)

This course focuses on several phases of long-term finance. Particular attention is devoted to complex cases dealing with capital budgeting, new financing, and mechanisms (both public and private) used to raise long-term funds.

44.221 A Risk Management Approach to Employee Benefit Programs 4 Q.H.
(Prereq. 44.120)

The concept of risk management is employed to develop a framework for a systematic treatment of employee benefit programs. The risks associated with the employee are defined, methods used by an employer to handle these risks are reviewed, and the concept of cost minimization of employee benefit programs is introduced. Private insurance, Blue Cross-Blue Shield, and government programs are viewed as alternative financing mechanisms of employee benefit programs, and the benefits and costs of these institutional arrangements are discussed.

44.240 Personal Finance 4 Q.H.
(Not open to College of Business Administration students)

The course focuses on management of the total personal estate: budgeting, savings, insurance, investments, borrowing, taxes, Social Security, pensions, annuities, securities markets, mutual funds, and their integration.

44.241 Personal Financial Management 4 Q.H.
(Prereq. 44.120)

The course places emphasis on the development of personal financial management expertise based on an integrated plan for personal choices in which alternative courses of action are judged by their contribution to the attainment of the decision-maker's particular set of economic objectives. The overall personal economic plan is the consistent focus of the course and unites such diverse topics as inflation and investment selection, insurance, short and long run hedges against the purchasing power risk, purchasing assets, etc. The course is decision oriented. It attempts to expose students to alternative courses of action and lead them toward a rational solution by developing techniques of estimating the success probabilities of alternative methods.

44.275 Money and Business Activity 4 Q.H.
(Prereq. Middler standing)

The course aims to provide students an under-

standing of the financial environment faced by a firm as well as the financial institutions serving the economy. The course discusses the forces which determine the changes in money and capital markets and explores the implications of changing the financial environment for the management of funds in a firm and/or financial institution.

44.291 Seminar in Finance Theory 4 Q.H.
(Prereq. 44.120 and 44.154)

The course involves a discussion of the different theories related to the financial policies of

business organizations and an analysis of the contributions of various theorists in finance. It covers topics such as debt capacity, capital budgeting under uncertainty, cost of capital, dividend policy, and the capital asset pricing model. The policy implications, limitations and underlying assumptions of various theories are incorporated into the course.

44.292 Honors Seminar in Finance Theory 4 Q.H.
(Prereq. Participant in Honors Program only)

See course description for 44.291.

Management

45.106 International Labor Relations Systems 4 Q.H.
(Prereq. 45.210)

This course analyzes the labor relations systems of selected countries in comparison to that of the United States. The political, cultural, and economic forces that shaped these systems are also studied. Special attention will be given to such international institutions as multinational companies and the EEC. There will be cases, readings, and projects assigned.

45.112 Business Policy 4 Q.H.
(Prereq. 45.210)

This course focuses on corporate strategy and its elements, including an analysis of the company, its resources, opportunities, environment, and decision makers. Emphasis is on decision making and implementation of strategy while operating a company in the context of a business simulation.

45.130 Opportunity Analysis and Venture Capital 4 Q.H.
(Prereq. 45.212 or consent of instructor)

This course is concerned with the essential tasks performed prior to establishing a new venture. These include finding a suitable business opportunity or developing an idea for a product or service; analyzing the feasibility of the opportunity; developing an idea for a product or service; analyzing the feasibility of the opportunity; developing a business plan; structuring the venture team; seeking sources of seed capital; and forming a venture action plan for beginning operations.

45.160 Operations Planning and Control 4 Q.H.
(Prereq. 45.265)

This course focuses on the planning and control necessary for an enterprise to respond to customer demand. Specific topics include the design of the planning and control system, inventory planning and control, forecasting for operations planning, and operations scheduling.

45.209 Organizational Behavior 4 Q.H.
(Prereq. Middier standing)

This course explores the effects of individual, interpersonal, group, and leadership factors on human behavior. Managerial applications of behavioral and social science concepts are also ex-

plored, including job design, job satisfaction, performance appraisal, supervision, career dynamics, and organizational change. Emphasis is placed on helping the student develop skills in dealing with the "human side of enterprise."

45.210 Complex Organizations 4 Q.H.
(Prereq. Middier standing)

The course examines the structure and dynamics of the complex organization. Focus is on the design of the organization and its basic sub-systems (reward, control, selection, development). Students have the opportunity to explore how organizational structures help shape human behavior. Emphasis is on understanding the interrelationships among organizational structures, tasks, and individual characteristics within the context of a changing environment.

45.212 New Venture Creation: A Career Choice 4 Q.H.
(Prereq. Middier standing)

This course is designed to assist students interested in small business in answering a number of important questions through a systematic analysis of their own potentials for entrepreneurial careers, i.e., What is involved in starting my own business? What is my own entrepreneurial orientation and commitment? What managerial and behavioral skills do I need for achievement? How can I plan for my personal and entrepreneurial goals? Case discussions, self-assessment and goal-setting exercises, guest speakers, and a student-selected project are used.

45.216 Managerial Skills Seminar 4 Q.H.
(Prereq. 45.210)

This course offers a study of the nature of managerial work focusing on three key managerial roles—interpersonal, informational, and decisional. Behavioral determinants of administrative effectiveness are examined with an emphasis on the practical implications of and personal orientations to those key managerial roles.

45.218 Motivation and Control 4 Q.H.
(Prereq. 45.210)

This course provides an extensive analysis of

various theories of motivation, including Herzberg's two-factor theory, expectancy theory, learning theory, need theory (McClelland), and competence motivation. This course also considers the behavioral implications of various organizational systems of measuring and controlling operations.

45.250 Business and Society 4 Q.H.
(Prereq. 45.210)

This course offers an analysis of environmental influences—economic, legal, technical, social, cultural, and ethical—affecting the corporation. The focus is on reconciling the strains generated by these external factors and their impact on managerial decision making.

45.263 Career Exploration and Self-Assessment 4 Q.H.
(Prereq. 45.210)

This course examines the tools for both self-assessment (investigating one's skills, abilities, needs, values, and interests) and career exploration (determining the nature of and requirements for entering and succeeding in various career fields). The goal of the course is to help students develop an individualized plan of action which summarizes a wide variety of data indicating an individual's present status and career goals, and the means by which to bridge the gap.

45.265 Operations Management 4 Q.H.
(Prereq. 49.251)

Operations management is concerned with planning and controlling the operations system of the firm, and includes the use of materials, workers, facilities, technology, and information to accomplish the objectives of the system. The course provides students an opportunity to acquire a basic understanding of the management of operations systems—their design, control functions, evolution, and modification—in order to facilitate managerial decision making in operating systems. Includes the design of product and process, capacity determination, work measurement, human factors, production planning and control, inventory management and quality control.

45.267 Strategies of Organizational Changes 4 Q.H.
(Prereq. 45.210)

This course focuses on three basic areas: (1) organizations as stable systems that naturally resist both planned and unplanned change; (2) organizations as dynamic systems that continuously respond to both internal and external pressures for change; and (3) strategies and techniques for designing, implementing, and managing change. The role of the change agent will be discussed in this context.

45.268 Assessment of Prospective Employees 4 Q.H.
(Prereq. 45.210)

A variety of technical methods is presented which can significantly improve the effective-

ness of personnel assessment over the typical methods presently in use. Personnel tools such as testing, interviewing, references, and biographical information will be examined critically. Basic issues and procedures such as equal employment opportunity, decision strategies, and the utility and evaluation of selection systems will be covered in detail.

45.272 People and Productivity: Human Resources Management 4 Q.H.
(Prereq. 45.209)

This course is designed to help students develop understanding of contemporary issues in human resource management. Problems posed by changing work patterns, labor force characteristics, union activities, and governmental policies are examined. Organizational experiments such as worker participation, job enlargement, and group incentives are discussed and evaluated from a managerial perspective.

45.273 Personnel Administration 4 Q.H.
(Prereq. 45.210)

This course explores basic traditional personnel functions, with an emphasis on the role of the personnel specialist. Functions include recruitment, selection, placement, training and development of employees, as well as reward systems such as money and promotions. The recent challenge of new regulatory systems, such as affirmative action and occupational safety and health, on employment planning will be covered.

45.274 Contemporary Labor Issues 4 Q.H.
(Prereq. 45.210)

The course provides a study of current issues dealing with labor in its broadest sense. Labor unions and manpower institutions as well as the emerging development and training problems motivated by unemployment, poverty, and changing work patterns are discussed. Recent legislation dealing with the employment relationship is reviewed.

45.275 Labor Law 4 Q.H.
(Prereq. Middled standing)

The purpose of this course is to help acquaint the student with the many constitutional and legal problems involved in labor organizing, industrial relations, labor negotiations, labor contract enforcement, and dispute resolution. Cases are studied for the legal principles underlying the common law, state and federal laws, and the constitutional questions of power and authority. The Sherman Act, Clayton Act, Norris-LaGuardia Act, and Labor Management Relations Act are considered.

45.276 Seminar in Collective Bargaining 4 Q.H.
(Prereq. 45.210)

The course focuses on the organization, negotiation, and administration of collective bargaining relationships between management and unions in different industries, services, and levels of

government. Simulations of actual bargaining and an arbitration exercise is also a part of the course.

45.277 Reward Systems: Wage, Salary and Benefits Administration 4 Q.H.
(Prereq. 45.210)

This course examines one of the major functions of personnel administration, compensation management, and its part in the overall personnel programs of the organization. The analysis of reward systems as supportive mechanisms of management and the formulation of compensation policy and implementation of compensation systems are developed through simulation exercises and group projects, as well as lectures and cases.

45.278 Leadership 4 Q.H.
(Formerly 45.258, *Dynamics and Practice of Superior—Subordinate Relations*)
(Prereq. 45.210)

This course offers a study of the leadership function in a variety of organizational settings. Using a contingency approach, this course explores a range of possible leadership behaviors, relating the appropriateness of a particular style to a number of situational factors. Readings provide an opportunity to explore several contingency theories of leadership; cases allow for the application of these models; and videotaped role playing and self-assessment techniques permit the student to evaluate his or her own leadership style.

45.279 The Changing Workplace: an On-Site View of Industrialization 4 Q.H.
(Prereq. 45.210)

America, and New England in particular, is noted as the place where the genius of industrial innovators and managers brought the industrial revolution to its first real flowering. This course deals in depth with the interactions of technical, economic, social, and managerial factors as they evolved in forming industrial New England. Emphasis is on the nineteenth century although forces will be traced from colonial New England

to the present. Focus is on the participants in this dynamic free enterprise process—the managers and workers—and the settings in which they worked and lived. The seminar format includes on-site studies of factory settings, mill reconstructions, museums, and the communities in which developments took place. The seminar also includes films, lectures, and individual tutorials. Each student is required to complete a research project.

45.285 Honors Seminar in Business-Government 4 Q.H.
(Prereq. Open to honors participants only)
See course description for 45.284.

45.286 Honors Course—The Changing Workplace: An On-Site View of Industrialization 4 Q.H.
(Prereq. Open to honors participants only) 4 Q.H.
See course description for 45.279.

45.295 Small Business Institute Project 8 Q.H.
(Prereq. Junior standing and one entrepreneurship course or permission of instructor)
The Small Business Institute Field Project has been launched with the cooperation of the Small Business Administration (SBA) and some of its client companies in greater Boston. A student team is expected to interact with a smaller company, helping management to analyze opportunities and problems facing the business, and to develop practical recommendations for the company's decision makers. Students are expected to allocate approximately one day per week to the project, including on-site work with the company owner-managers with whom they have been paired and to participate in related research, report preparation, and presentation of results. This real-world experience is blended with occasional class meetings and frequent team meetings with a faculty member to discuss the field work and to explore alternatives. Interim progress reports and a final report are presented to the client company, SBA, and the class.

Also see course 30.205, Writing for the Professions: Business Administration.

International Business Administration

46.100 Introduction to International Business 4 Q.H.
(Prereq. Middler standing)

This course focuses on the cultural, economic, and political aspects of domestic and foreign environments and their effect on the international operations of business firms. Topics covered in-

clude 1) the principles, patterns, and potential of international trade and investments; 2) the development of management strategies for international businesses; and 3) the organization and management of the firm's international operations.

46.101 Seminar in International Business 4 Q.H.
(Prereq. 46.100)

This course applies the concepts and skills acquired in other international and domestic courses to the solution of managerial problems. It focuses on the task of solving significant managerial problems in international and foreign cultural contexts. Students' reports form a major part of this course and are expected to concentrate on either a functional business area related to international operations or on analyses of market opportunities and methods of entry in a foreign environment. Other instructional vehicles include case analyses and discussions of current issues.

46.102 Comparative International Management 4 Q.H.
(Prereq. Middler standing)

The objective of this course is to help to develop the student's conceptual and analytical abilities

to 1) identify and analyze management systems in various national settings and 2) understand the impact of economic, social, political, and cultural variables on management systems.

46.103 Environmental Pressures and the Multinational Corporation 4 Q.H.
(Prereq. 45.209 and 45.210)

Rapid multidimensional change in the world environment creates substantial pressures on corporations—especially large multinationals. The purposes of this course are to identify and evaluate 1) environmental pressures most likely to have impact in the coming decade(s); 2) planning approaches which may be useful to the manager in analyzing the changing world environment; and 3) possible corporate responses to any environmental pressures. This course is designed for both students in international business and those who have a general interest in the changing environment.

Transportation

48.101 Principles of Transportation 4 Q.H.
(Prereq. 39.105 and Middler standing)

Topics include the political, social, and economic functions of transportation; development and structure of the domestic transportation system; the nature of government regulation and promotion of the several modes.

48.102 Current Issues in Transportation Policy 4 Q.H.
(Prereq. 48.101)

This course provides an overview of the regulatory process and its impact on the domestic transportation system; critical examination of topical policy issues which confront carriers, shippers, and the agencies of regulation.

48.103 Carrier Management 4 Q.H.
(Prereq. 48.101)

This course examines the transportation system from the carrier's viewpoint; managerial response to a heavily regulated and rapidly expanding environment and a focus on carrier decision making involving routes, scheduling, financing, and pricing of services.

48.104 Physical Distribution Management 4 Q.H.
(Prereq. Middler standing)

This course is concerned with movement, distribution, and control of raw material and finished goods flows. An examination of the importance of inventory control, scheduling, ware-

housing, and transportation in the design and operation of distribution systems are also discussed.

48.105 Urban Transportation 4 Q.H.

This course focuses on the movement of people and freight in and around metropolitan areas. Study includes a management approach to the planning, implementation, and operation of mass transit systems. Interrelationships of transit with other urban programs, the auto mode, and the government/public sector will be discussed.

48.106 Air Transportation 4 Q.H.
(Prereq. 48.101)

The course offers a managerial perspective on economics and regulation of aviation. The course probes aspects of commercial aviation, passenger and cargo transportation, and key areas of general aviation.

48.108 Transportation Labor 4 Q.H.
(Prereq. 48.101)

This course focuses on the significance of the labor component in the transportation industries. Attention is devoted to trends in employee compensation, productivity, and bargaining patterns. Also examined are the role of government in this area and the impact of transportation labor on shippers, carriers, and consumers.

48.110 International Transportation and Distribution Management 4 Q.H.

This course examines the present and future status of United States and world ocean and air transportation in international trade and development. The economic, regulatory, financial and operating characteristics of these forms of carriage are examined with primary emphasis given to their impact on international trade patterns. Other topics include government promotion, subsidy, and technological innovation.

General Business

49.100 Introduction to Business 4 Q.H.

This course focuses on the business organization as a system of interrelated functions and operations, the interactions between the organization and its environment, and the role of management in business organizations.

49.107 Management of Smaller Enterprises 4 Q.H.

This is a general management course that focuses upon the strategies and operating problems of smaller, already established business enterprises. The course is designed for individuals who are considering entrepreneurial careers or careers in management, finance, or marketing within the smaller company environment. Discussion will explore the characteristics and urgencies of problems that smaller companies are likely to encounter at different stages in their evolving life cycle, from the postnatal period to the more mature stage.

49.124 Honors: Seminar in Research 4 Q.H. (Prereq. 49.251)

This seminar focuses on the definition of research in the context of the business environment, research methodologies, and the student's attempt at research through a term project. Methodological issues include the formulation of concepts, hypotheses, and theories; the design of research projects; data collection; data analysis; and report writing. The term project involves investigation of a subject of interest to the student. The projects are intended to serve as prototypes of honors theses.

49.155 Legal Aspects of Business 4 Q.H.

This course examines the legal aspects of business transactions and business relationships involving contracts; sales, bulk transfers and secured transactions under the Uniform Commercial Code; principal and agency; and suretyship and guaranty.

49.205 Introduction to Data Processing 4 Q.H.

This course is designed to introduce the business student to those aspects of modern data processing techniques vital to his or her future job performance. During the first part of the course, the student will have the opportunity to

48.120 Seminar in Transportation and Distribution 4 Q.H.

(Prereq. 48.102 and 48.104)

This is a discussion- and research-oriented course which focuses on a limited number of advanced transportation and distribution topics. Included is interaction with business and government through individual research on the topic chosen for presentation by the student.

Also see course 49.262 for Independent Study.

learn to program in the BASIC language on the University's VAX 11/780 time-sharing system. The second part of the course deals with the history of data processing, computer hardware and software, and an overview of the creation and operation of management information systems.

49.210 The Law of Business Organizations and Commercial Paper 4 Q.H. (Prereq. 49.155)

This course is an introduction to the legal aspects of the typical forms of business organizations, partnerships, corporations, and the rights, responsibilities and liabilities involved. The course also covers the law governing Commercial Paper under the Uniform Commercial Code, and the Bankruptcy Reform Act of 1978.

49.212 Law of Wills, Trusts and Estates 4 Q.H.

Topics include requirements of valid will, claims of and against estates; the administration of estates, both formal and informal; essential elements for the creation of a trust; kinds of trusts, including inter vivos and testamentary trusts; the rights, responsibilities and liabilities of trustees; and the rights of beneficiaries.

49.214 Decision Analysis 4 Q.H. (Prereq. 49.251)

This course focuses on the analysis of decision making with particular emphasis on realistic problems under uncertainty. The course aims to help improve the student's ability to make better decisions through a careful consideration of alternative courses of action and their consequences, relevant objectives, and the element of risk. Topics include the basic components of decision problems, the concepts of risk and utility, decision trees, and value of information and multicriteria decision making.

49.215 Bulk Sales and Bankruptcy 4 Q.H.

(Prereq. Middler standing)

In examining bulk transfers, a detailed study is made of the Uniform Commercial Code, Article 8: the need of the transferor to give to the transferee a sworn list of all his creditors; the contents of the notice, what creditors are protected;

and the legal consequences of failure to comply with the Code. The bankruptcy aspect of this course deals with both voluntary and involuntary bankruptcies; the acts of bankruptcy; the appointment and duties of the trustee; provable and dischargeable debts; priority of debts; discharge and acts which bar a discharge.

49.240 Law in Society 4 Q.H.
(Prereq. Middler standing)

Designed to provide students the opportunity to acquire a broad view of their legal rights, obligations and responsibilities in their relationships with others and with the state, the course includes study of torts such as assault and battery, trespass, negligence, slander, libel and deceit; and crimes such as homicide, assault and battery, robbery, arson, larceny, and burglary.

49.249 Introduction: Quantitative Methods in Business 4 Q.H.
(Prereq. 10.119)

A model is a simplified representation or abstraction of reality. The focus of this course is on the representation of systems or managerial problems in the form of mathematical models and their application to problem solving in business. Criteria for selecting an appropriate model description are discussed and specific techniques for development examined, including linear programming, differential calculus, and the use of descriptive statistics.

49.250 Business Statistics I 4 Q.H.
(Prereq. 49.249)

Statistics is a methodology concerned with data collection, analysis, and interpretation. Information generated by statistical methods is used for analyzing decisions in the face of uncertainty. This course introduces fundamental concepts and methodology of probability, probability

distribution, Bayesian revisions, estimation, and hypothesis testing.

49.251 Business Statistics II 4 Q.H.
(Prereq. 49.250)

Continuation of 49.250. Topics include chi-square tests, simple and multiple regression-correlation analysis, and elementary concepts of decision theory.

49.262 Independent Study 4 Q.H.

For a student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under whose direction the study will take place. A copy of the final report prepared by the student will be presented to the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

49.263 Independent Study 4 Q.H.
Same as 49.262.

49.264 Independent Study 4 Q.H.
Same as 49.262.

49.265 Independent Study 4 Q.H.
Same as 49.262.

49.266 Independent Study (Honors) 4 Q.H.
Directed study toward fulfillment of Honors Program requirements. Open only to students who have been accepted into the Honors Program. Procedures for arranging the Honors Independent Study are the same as those for 49.262.

Education—Foundations

50.114 Education and Social Science 4 Q.H.

An interdisciplinary course, drawing on anthropology, psychology, and sociology, that exposes students to some of the concepts, methods, and terminology of these fields. Main themes are the evolution of human nature, the influence of previous experience and learning on the behavior of individuals and groups, difficulties in achieving a full degree of humanity in technological society, and the potentially powerful roles that "professional socializers" (teachers, men in the Boston-Bouvé College of Human Development Professions (except Physical Therapy); open to other students as an elective; prerequisite for subsequent courses in Social Foundations (50.161-50.168).

50.121 Human Development and Learning I 4 Q.H.

Developmental processes from prenatal life up to adolescence. Theories of learning and personality with research and case material covering major aspects of psychological development.

50.131 Human Development and Learning II 4 Q.H.

Basic overview of the continuity of human development in contemporary society, from the pre-adolescent period through adolescence, adulthood, middle age, and old age. Significant areas of growth, development, and adjustment for each period are considered, including social, sexual, personality, motivational, and cognitive aspects. 50.121 is *not* prerequisite for this course.

50.132 Creative Expression in Children 4 Q.H.

(Prereq. 50.121)

Designed to assist students who are interested in working with children in a variety of settings. Discussion focuses on the potentials of creative expression in interpersonal communication; the relationship of children's creative experiences to their cognitive, emotional and social development; and related topics that will provide students the opportunity to acquire experience and confidence in working with various media available for creative expression.

50.133 Educational Applications of Social Psychology 4 Q.H.

(Prereq. 50.121 or 50.131)

Focus is on theory and research in social psychology especially relevant to education. Areas covered are prejudice in the classroom; the school as a setting for manifestation of authoritarian personality; attitude organization and change in an educational environment; the class and the clique as "small groups"; the expression of need for achievement in various school structures; and related topics.

50.134 Mental Health in Teaching 4 Q.H.

(Prereq. 50.121 or 50.131)

Factors involved in the choice of teaching as a career and psychological and occupational factors which contribute to teacher happiness, dissatisfaction, adjustment, and maladjustment. Examination of these factors is a background against which to consider 1) what teachers can do to foster healthy personalities; 2) how to deal with psychological forces in the classroom; and 3) steps to strengthen the emotional development of the normal child.

50.135 Cross-Cultural Studies of Child Rearing and Education 4 Q.H.

(Prereq. 50.121 or 50.131)

Child rearing and child life in contrasting cultures around the world. Emphasis is on cognitive, emotional, and behavioral outcomes of concern to American educators, human services workers, and parents. Consideration is given to alternative patterns of child rearing possibly useful in modern society. Readings focus primarily on ethnographic descriptions of particular cultures and psychological comparisons of children from contrasting backgrounds.

50.136 Language and Cognition: Educational Implications 4 Q.H.

(Prereq. 50.121 or 50.131)

Development of language and thought in the child: concept learning, problem solving, and language acquisition. Particular consideration given to the implications of current research and theory in these areas for educational practice.

50.137 Seminar in Adolescent Psychology 4 Q.H.

(Prereq. 50.131)

In-depth examination of motivational, in-

tellectual, social, and emotional development of adolescents, from end of preadolescence to beginning of young adulthood. Special attention is given to current issues such as drug use, sexual behavior, and vocational choice. Each student is expected to examine a topic of choice in some depth.

50.138 Seminar in Human Learning and Motivation 4 Q.H.

(Prereq. 50.121 or 50.131)

Survey and analysis of the literature on human learning and motivation. Emphasis on interaction between human learning and motivation in the developmental process and the classroom.

50.139 Seminar in Early Childhood Development 4 Q.H.

(Prereq. 50.121)

The theory and research regarding the cognitive, personality, and social development of children from birth to six years, with respect to their implications for early childhood education. Various existing programs examined and new directions explored.

50.141 Measurement and Evaluation 4 Q.H.

(Prereq. 51.135)

The fundamentals of measurement: the use of basic statistical concepts and techniques; evaluation of standardized and teacher-made tests.

50.142 Introduction to Educational Statistics 4 Q.H.

Emphasizes descriptive statistics useful in the evaluation of educational and related professional activities. Topics ordinarily covered include statistical notation, variability, probability, sampling techniques, linear regression, correlation, t-tests, and chi-square tests of significance. Examples of applications of these techniques will be drawn, so far as possible, from the fields for which students in the course are preparing, as this may vary from quarter to quarter.

50.152 Comparative Education 4 Q.H.

A comparison of the national school systems of selected foreign countries with the school system in the United States. Course content includes comparative data in the fields of teaching, speech and hearing, special education, and human services.

50.153 Philosophy of Education 4 Q.H.

Objective is to help participants examine their own purposes in relation to those of the school as an institution. Course reading material will consist primarily of philosophical writings on topics such as the ethics of educational intervention, the delineation of educational concepts, the educational messages of long-range speculations and utopias, and normative assumptions underlying educational policies.

50.154 Current Issues in American Education**4 Q.H.**

An analysis of the variety of current issues confronting teachers, speech and hearing clinicians, special education practitioners, and human services specialists. Attempts will be made to place these issues in a historical context.

50.161 Seminar in Group Process**4 Q.H.**

A study of the structure, dynamics, and function of face-to-face groups leading to learning about goal achievement and task orientation. The course operates mainly by committee or group instrumentation. The serious student should work to gain an understanding of the function of informal relationships within formal organizations, the various roles within groups, peer relationships, superior-subordinate relationships, authority and intimacy, and the inclusion and exclusion processes.

50.162 Day Care and Nursery Schools: Social and Cultural Origins**4 Q.H.**

An exploration of the origins of the increased contemporary use of out-of-the-family child care arrangements in the United States and in selected European and Third World nations. Course topics include the interrelationships of industrialization, technology, and family functioning; contrasting varieties of child care centers in operation today; and effects of the proliferation of child care centers on other aspects of society, such as neighborhood life, business, parents' lifestyles, elementary school curricula, government spending, and the job market in education and human services. Two to four hours per week of fieldwork in a child care center are required of each student.

50.163 Schools as Social Systems**4 Q.H.**

(Prereq. 50.114 or equiv.)

Analysis of schools as sociocultural sub-systems within the larger society. Functional interrelationship between student and school sub-cultures; status and role systems; authority structures in American schools. During most quarters, one section of this course focuses on elementary and secondary schools and a second focuses on day care centers and nursery schools; students preregistering should choose the appropriate section.

50.164 Class and Ethnic Relations in Education

(Prereq. 50.114 or equiv.)

4 Q.H.

The various ways in which the American class system and patterns of ethnic group relations have affected, and have been affected by, American education. The limitations and potential of educational institutions with respect to the resolution of intergroup conflicts and the establishment of equal educational opportunities.

50.165 Organization and Politics of School Systems**4 Q.H.**

(Prereq. 50.114 or equiv.)

The political sociology of school systems in the United States. An analysis of the power and authority structures in contemporary education. Who decides what and how? Who controls the system? How are the various interest groups organized? What are the mechanisms for conflict resolution? The relationship between professional and nonprofessional interest groups.

50.166 The Human Services Professions**4 Q.H.**

(Prereq. 50.114, 21.100, or equiv.)

Explores what a human service agency is, how it comes into being, how it grows and changes. Attitudes, values, skills, and knowledge of the human services worker are analyzed, as are reasons why people in modern society require human services assistance. Human services are viewed from the eyes of clients as well as society as a whole. Fieldwork in a human service agency is a major course component, as is a good deal of independent study. Required for all human services majors; open to other students on space available basis.

50.167 Education and Psychosocial Development**4 Q.H.**

(Prereq. 50.114 or equiv.)

(Prereq. 19.135 for human services majors)

Theories and research on the socialization functions of education. Topics covered include the relative influence of early vs. postchildhood socialization; the role of diverse educational experiences and institutions in personality development and change. Human services majors should arrange to take specially designated sections of this course, offered most quarters, after completing 19.135, Personality I.

50.168 Education and Social Change**4 Q.H.**

(Prereq. 50.114 or equiv.)

A sociological exploration of educational systems as independent and dependent variables in social change. Instances of planned educational change in various countries and their implications for contemporary American society.

50.190 Directed Study**4 Q.H.**

(Permission)

This experience is provided for the student whose unique academic needs or interests cannot be adequately satisfied in any of the scheduled courses of the Department. *Preparation:* Approval of the supervising faculty member and the Dean's Office of the Boston-Bouvé College of Human Development Professions. Approval forms must be submitted to the Dean's Office during the quarter prior to registration for the Directed Study.

Education—Curriculum and Instruction

51.123 Fundamentals of Reading I 4 Q.H.

This is the introductory course in development reading for prospective elementary teachers. In the first term, emphasis is on language and symbolic process as it relates to beginning reading. Areas of skill development, such as word-recognition and meaning comprehension, are studied in detail, as are some methods and techniques of testing and grouping. Also included are an introduction to some reading books and materials, methods of teaching, and the psychology of learning to read.

51.124 Modern Mathematics Curricula 4 Q.H.

Mathematics curricula in elementary and secondary schools, including experimental programs, presented in their historical setting.

51.125 Introduction to Reading 4 Q.H.

This introductory course for non-education majors provides an overview of the most common current approaches to teaching reading and writing, diagnosis and planning. Case studies, video-taped lessons and direct observations in the Reading Clinic are analyzed and interpreted. The relationships between speech and hearing development and dysfunction and reading and writing are investigated.

51.126 Teaching Reading in Secondary Schools 4 Q.H.

For English and social studies majors in the Boston-Bouvé College of Human Development Professions who are preparing for teaching in the junior or senior high school. Basically, the same approach and organization applies to this course as to the elementary level course. (One quarter)

51.127 Teaching Music in Elementary Schools (Prereq. 51.135) 4 Q.H.

An examination of the traditional Orff, Kodaly, Dalcroze, and other approaches to elementary school music. Attention given to children's motivations and participation in singing, listening, rhythmic, instrumental, and creative musical activities.

51.128 Teaching Music in Secondary Schools I (Prereq. 51.135) 4 Q.H.

A study of divergent views and approaches to teaching music to early adolescents. Problems related to curricular and extra-curricular activities, including vocal and instrumental groups, will be examined, with particular attention to the problems of the changing voice. Music will be studied in its relationship to other aspects of the curriculum. Opportunity will be provided to apply group and individual teaching skills.

51.129 Teaching Music in Secondary Schools II (Prereq. 51.135 and 51.128) 4 Q.H.

An examination of a number of concepts, approaches, and curriculum patterns employed in

teaching high school music. Attention is given to music appreciation and music theory and to vocal, instrumental, ensemble, club, and concert areas of performance. Demonstration skills required to teach in high school programs will be explored.

51.154 Fundamentals of Math and Science I 4 Q.H.

This is the first of two sequential courses in methods and materials of mathematics and science teaching for elementary school teaching majors. The course offers a structured integrated approach to the subjects, stressing their principles and processes.

51.155 Fundamentals of Math and Science II This course is a continuation of 51.154. 4 Q.H.

51.156 Elementary Education Curriculum I 4 Q.H.

The elementary school of curriculum is analyzed on the basis of the overall objectives of the American elementary school. Students are expected to evaluate and organize units of work which are appropriate to the level at which they plan to teach. The integrated approach to learning is emphasized, with particular focus on science, social studies, and language arts subjects.

51.157 Elementary Education Curriculum II (Prereq. 51.141) 4 Q.H.

The objectives, activities, and methods of evaluation in the elementary school are continued, with special attention to the areas of music, art, and physical education.

51.134 Fundamentals of Reading II (Prereq. 51.123) 4 Q.H.

A continuation and extension of the first term. Study skills; speed and fluency development areas. The tutorial work is extended and the student is given further opportunity to achieve familiarity with books, materials, and methods.

51.135 Analysis of Teaching and Educational Process (Prereq. 50.131) 4 Q.H.

The relationships that exist between instructional objectives and teaching behavior; applications of theories of human development and learning as they relate to subsequent specialized teaching methods and materials. Research results and promising theory are used to help extend the prospective teacher's concepts of the teaching function.

51.137 Remedial Reading (Prereq. 51.134) 4 Q.H.

For prospective teachers in the primary unit. This introductory course may assist in familiarizing the student with some of the most commonly known reading problems in the typical

classroom as well as in the reading clinic; analysis and evaluation of the typical diagnoses of such problems; corrective programs. Tutorial work with a retarded reader, with each student keeping a log or journal of work with a particular reading problem.

51.138 Linguistics and Reading 4 Q.H.
(Prereq. 51.134)

For prospective elementary level teachers (primary unit). The major objective is to translate the knowledge gathered from structural and descriptive linguistics into useful classroom instruction, which includes not only reading instruction, but basic instruction in the related language skills. The contributions, particularly of such writers as Fries, Barnhart, Bloomfield, and LeFevre, are experimented with and analyzed.

51.139 Writing and the Teaching of Writing 4 Q.H.
(Prereq. 51.135)

A study of the logical and rhetorical bases of exposition and argumentative writing; relationships of assumptions, assertions, and implications; the nature of proof in the sciences, social sciences, and the humanities; strategies of argumentation; the effective consequences of word choice and sentence structure.

51.140 Methods and Materials of Teaching Modern Languages I 4 Q.H.
(Prereq. 51.135)

The most effective types of classroom activities, subject unit organization, assignments, examinations, and teaching aids used in modern language. The role of the language laboratory with its problems of selecting equipment, scheduling pupils, planning tapes and content of drill exercises, evaluating results, and coordinating its functions with conventional classroom instruction.

51.143 Methods and Materials of Teaching English 8 Q.H.
(Prereq. 51.135)

An introduction to the structure and functions of language as they apply to teaching English; curriculum and planning in English. The unit approach; specific techniques of teaching reading and literature, grammar and usage, written and oral composition, listening, spelling, vocabulary, and the use of mass media.

51.144 Methods and Materials of Teaching Modern Languages II 4 Q.H.
(Prereq. 51.140)

Continuation of Methods and Materials of Teaching Modern Languages I.

51.145 Methods and Materials of Teaching Mathematics 4 Q.H.
(Prereq. 51.135)

Theory and practice of teaching secondary mathematics, including a discussion and

evaluation of instructional problems. Lesson planning and presentations by individual students afford appropriate practice and serve as the medium of instruction.

51.146 Reading/Study Skills I 4 Q.H.
Designed to provide instruction in study and organizational skills to students who demonstrate a need of these areas. The skills of pre-viewing, locating main ideas and related details, outlining, summarizing, note taking, and vocabulary development will be explored and applied to the content of courses that students may be taking as part of their requirements.

51.147 Methods and Materials of Teaching the Sciences 4 Q.H.
(Prereq. 51.135)

The prospective science teacher is introduced to the philosophies of science and their applicability in society and the secondary school, principles of developing and applying the science curriculum, and pertinent methods and materials in science education.

51.148 Reading/Study Skills II 4 Q.H.
(Prereq. 51.146 and instructor's consent)

This course is an extension of Reading/Study Skills I and will expand upon such previously examined topics as organizational skills necessary for effective handling of text materials, note taking, vocabulary development, and comprehension. New topics will include preparing for and writing examinations, writing and revising research papers, and an introduction to library skills. All skill work is expected to be applied to concurrent coursework.

51.149 Methods and Materials of Teaching Social Studies 4 Q.H.
(Prereq. 51.135)

A field-oriented course conducted off campus in one or more schools of cooperating public school systems where College of Education students work with pupils individually and in small groups. Techniques of planning, developing curriculum materials, using audiovisual equipment, simulations, developing and implementing evaluation instruments, presenting original materials in class.

51.150 Supervised Field Placement: Early Childhood 2 Q.H.
(Prereq. Early Childhood sequence through 51.142)

A University arranged institutional placement to allow students the opportunity to provide educational, remedial, and/or custodial services to children generally of ages two through five. Opportunity will be provided to analyze, develop, demonstrate, and evaluate skills and techniques in guiding the activities of children in nursery schools, day care centers, and/or kindergartens.

51.151 Student Teaching and Seminar 8 Q.H.
(Prereq. Formal acceptance into and completion

of advanced professional sequence with minimum 2.0 Q.P.A., both overall and in teaching major)

Full-time participation in a university-arranged and supervised school program designed to provide opportunity for the analysis of learning and teaching and for the demonstration, evaluation, and development of teaching skills.

51.152 Literature and Learning Materials for Children and Young Adults 4 Q.H.

This course is designed specifically for prospective teachers. It offers a comprehensive survey and critical analyses of books and materials available for basic reading instruction and for supplementary reading activities. Recognition of recurring themes in children's literature, especially relating to the classics, is emphasized. The ultimate goal is to help expand the student's awareness of the range of materials available and their effective uses in a reading program. This course is suitable as preparation for courses in developmental or remedial reading.

51.153 Current Issues in Teaching the Gifted and Talented 4 Q.H.

(Prereq. 50.121 or 50.131)

Students will have the opportunity to examine screening devices for identifying the gifted and talented and to evaluate their effectiveness.

Education—Counseling

53.101 Introduction to Counseling 4 Q.H.

(Prereq. Junior standing)

This course presents a foundational exposure to major theoretical approaches to counseling. Students will receive training and practice in listening skills and are expected to develop facilitative responses. Classroom work will combine didactic presentations and experiential activities to assist students in understanding and implementing a variety of counseling approaches.

53.102 Introduction to Group Counseling 4 Q.H.

(Prereq. 53.101)

This course provides a foundational exposure to the theory and skills of group counseling as it is practiced in various human service settings. Topics cover developmental stages of counseling groups; approaches to leadership style; and strategies for starting, maintaining and terminating the counseling group. The course includes an opportunity for students to practice rudimentary skills of leadership of counseling groups and to become involved in focused group process activities.

53.103 Introduction to Family Systems Counseling 4 Q.H.

(Prereq. 53.101)

This course provides an introduction to the concepts and skills of Family Systems Therapy, a

Different philosophical postures and grouping strategies will be analyzed in relation to individual needs and the needs of a democratic society. Advantages and disadvantages of homogeneous and heterogeneous grouping will be explored. Cognitive, perceptual, psychomotor, social, aesthetic, and ethical needs will be emphasized. Instructional approaches and materials for the gifted will be examined in relation to this broad spectrum of needs.

51.190 Directed Study I 4 Q.H.

(Prereq. Permission)

This experience is provided for the student whose unique academic needs or interests cannot be adequately satisfied in any of the scheduled courses of the Department. *Preparation:* Approval of the supervising faculty member and the Dean's Office of the Boston-Bouvé College of Human Development Professions. Approval forms must be submitted to the Dean's Office during the quarter prior to registration for the Directed Study.

51.191 Directed Study II 4 Q.H.

(Prereq. 51.190)

For students who have completed 51.190, Directed Study I. The preparation for this course is the same as that for the Directed Study I course.

counseling orientation in which the family is the chosen social unit of assessment and intervention for the client's presenting problem. The course covers major approaches within communications and structural frameworks, emphasizing implications for normal family development and interventions in dysfunctional systems, and addresses theory and strategies for working with marital and parenting subsystems. Course offers students a beginning opportunity to experience the manner in which their family impacts on their functioning in various social systems with which they have professional contact.

53.220 Case Management: Diagnosis and Treatment 4 Q.H.

(Prereq. 21.100 or 50.114; 50.121-50.131 or 19.105-19.106; 21.157; 50.166)

The course offers an introduction to the basic theory and skills of managing client's treatment programs in a variety of institutional settings. Students receive training to identify the components of a psychosocial assessment, examine commonly used techniques of planned service delivery and resource coordination, and review the diverse entitlements that are available to clients of diverse needs and backgrounds. Much of the instruction will occur in a seminar-like format.

Speech-Language Pathology and Audiology

55.122 Introduction to Speech and Hearing

4 Q.H.

Course offers an overview of disorders of speech and hearing and their treatment, and a review of normal speech and hearing development. Clinical observations of persons with speech, language, and hearing disorders are required.

55.123 Speech Science

4 Q.H.

(Prereq. 55.122 and 55.125)

Course offers an examination of the basic sciences involved in speech and audition, including in-depth study of the analysis of sound and the acoustic composition of speech. Emphasis is placed upon a review of current theory and research in speech reception, perception, and production.

55.125 Hearing Science

4 Q.H.

(Prereq. 55.122)

Basic concepts related to the physics of sound are presented, followed by an in-depth study of the anatomy and physiology of the normal hearing mechanism. In addition, basic principles of psychophysics of audition are discussed.

55.126 Anatomy and Physiology of Vocal Mechanisms

4 Q.H.

(Prereq. 55.122)

Course offers an in-depth study of the static structure, musculature, and physiology of the speech mechanism. Current research in speech physiology is emphasized.

55.127 Introduction to Psychoacoustics

4 Q.H.

(Prereq. 55.123 or 55.125)

This course explores the physics of sound and the psychological aspects of hearing with an emphasis on clinical applications. Topics include threshold, loudness, pitch, adaptation, and auditory localization. The prerequisite may be waived only with permission of the Instructor.

55.128 Psychoacoustics Laboratory

4 Q.H.

(Prereq. 55.127)

This course provides practical application of topics discussed in 55.127. Students are required to recreate some of the most interesting of the classical psychoacoustics experiments. The prerequisite may be waived only with permission of the instructor.

55.131 Developmental Semantics and Syntax

(Prereq. 55.122)

4 Q.H.

Course provides an analysis of the emerging semantic and syntactical aspects of language in normal and in atypical children, with emphasis on discussion of current theory and research in language acquisition. Clinical observations of children with normal and atypical language patterns are required.

55.133 Phonetics and Developmental Phonology

(Prereq. 55.122 and 55.126)

4 Q.H.

Course offers a basic training in auditory recognition and symbolization of phonemes and allophones in major American dialects. Static and dynamic articulatory descriptions are stressed. Course also includes a review of the developmental sequence of phonemic acquisition.

55.141 Phonemic Disorders

4 Q.H.

(Prereq. 55.126, 55.131, and 55.133)

Course provides a practical and theoretical examination of the phonemic disorders and their etiology; diagnostic tools for evaluation and methods of treatment. Clinical observations of persons with phonemic disorders are required.

55.142 Introduction to Audiology

4 Q.H.

(Prereq. 55.125)

Course focuses on the basic techniques of audiometric testing and hearing conservation, including a review of basic hearing sciences and a prepracticum and lab experience in hearing testing.

55.143 Diagnostic Techniques

4 Q.H.

(Prereq. 55.131, 55.133, and 55.141)

Course offers a presentation and review of diagnostic tests and procedures in speech pathology. Emphasis is on the parent interview; the oral examination; and the appraisal of phonemic, phonatory, language, fluency, and auditory disorders. Observations of diagnostic evaluations are required.

55.144 Orientation to Clinical Practices

(Prereq. Senior status)

4 Q.H.

This is a pre-practicum course designed to introduce students to the policies of ASHA; to offer exposure to related health professions; to discuss the influence of state and federal legislation upon the delivery of speech-language and hearing services; to examine the role of the clinical supervisor; and to practice writing clinical goals and lesson plans.

55.154 Fluency Disorders

4 Q.H.

(Prereq. 55.126)

Course offers a comprehensive study of the various theories of stuttering from the earliest historical references through the 19th and 20th centuries. Clinical observations are required.

55.155 Clinical Practice and Seminar

4 Q.H.

(Prereq. 55.144)

Course provides full-time participation in a university arranged and supervised school program designed to provide the student with initial involvement in the clinician-client relationship and an opportunity to demonstrate, evaluate and develop clinical skills.

55.159 Basic Manual Communication Systems

4 Q.H.

Course focuses on the use of manual communication systems in deaf education (Manual

English, SEE, and Signed English). Discussions will cover the goals and assumptions underlying these systems, their relation to American Sign Language and English, and the application of these systems in educational and clinical systems. Instruction is provided in introductory level English Sign Language.

55.160 Directed Study 4 Q.H.
(Prereq. Permission)

This course is provided for the student whose

unique academic needs or interests cannot adequately be satisfied in any of the scheduled courses of the Department. Preparation: Approval of the supervising faculty member and the Dean's Office of the Boston-Bouvé College of Human Development Professions. Approval forms must be submitted to the Dean's Office during the quarter prior to registration for Directed Study.

Special Education and Rehabilitation

56.120 Introduction to Special Education 4 Q.H.
A survey of the characteristics and the social, emotional, and educational adjustment of special-needs individuals. The effects of society's attitudes, the individual's own attitude toward the handicap, and the effect of the handicap itself are evaluated. Current legislation will be reviewed.

56.121 Introduction to Learning Disabilities 4 Q.H.
(Prereq. 56.120)

This course surveys behavioral characteristics of children who present specific deficits in perceptual, integrative, or expressive processes which impair learning efficiency. Students are expected to work to develop competencies in diagnosing curriculum materials and teaching methods.

56.124 Diagnostics in Special Education 4 Q.H.
(Prereq. 56.120 and 56.121)

Students should work to develop competence in 1) observing, recording, and analyzing children's behavior and learning environments, including continuous measurement and informal assessment of general, specific, and behavioral learning needs; and 2) techniques of formal assessment of general, specific, and behavioral learning needs.

56.126 Methods and Materials of Teaching in Special Education 4 Q.H.

(Prereq. 56.120, 56.121, 56.124 or senior status)
Course instruction will focus on the following areas: 1) development and implementation of individualized educational plans, including task analysis, adaptation and selection of materials, strategies in applied classroom management techniques; and 2) adaptation and selection of materials and strategies in language arts, mathematics, and perceptual-motor skills.

56.130 Introduction to Emotional Disturbances in Children 4 Q.H.

(Prereq. 56.120 or permission)
Review of emotional processes which interfere with learning behavior and a study of approaches used to deal with behavioral disorders. Emphasis is on classroom management tech-

niques, use of consultation, and parent-teacher interaction.

56.135 Socio-Psycho Dynamics of Family Life 4 Q.H.

An introduction to and survey of the internal and external dynamics of family life. The significance of such dynamics to the mental health of the special needs child will be examined. The approaches to working with parents and the school-home relationships, as well as the effects of disability on the family are explored.

56.140 Psychology of the Mentally Retarded 4 Q.H.

Analysis of the etiology, nature, and needs of the retarded individual, emphasizing cognitive and psychosocial development. Implications of these characteristics for life-span management are explored in conjunction with parental and community attitudes and involvement.

56.150 Introduction to Rehabilitation 4 Q.H.

Overview of and orientation to the field of rehabilitation, including its historical development, psychological implications, and sociological dimensions. Special attention is paid to rehabilitation of specific disability groups such as the physically disabled, emotionally disturbed, mentally retarded, alcoholic, drug dependent, and public offender.

56.190 Directed Study 4 Q.H.
(Prereq. Permission)

This experience is provided for the student whose unique academic needs or interests cannot be adequately satisfied in any of the scheduled courses of the Department. Preparation: Approval of the supervising faculty member and of the Dean's Office of the Boston-Bouvé College of Human Development Professions. Approval forms must be submitted to the Dean's Office during the quarter prior to registration for the Directed Study.

93.230 Field Experience in Human Services I 4 Q.H.

Human Services students are required to fulfill two fieldwork placements during the last two years of their program. Each placement consists

of 150 hours on site. The type of placement varies according to the student's interest. Field experiences are supervised by University staff to maximize the student's learning opportunity.

Physical Education

- 62.10A Beginning Swimming** 1 Q.H.
Instruction in basic swimming skills, with emphasis on personal water safety.
- 62.10B Intermediate Swimming** 1 Q.H.
(Prereq. 62.10A or equiv.)
Instruction in basic and advanced swimming skills, with emphasis on form and efficiency.
- 62.10G Water Polo** 1 Q.H.
(Prereq. 62.10B or equiv.)
Instruction in beginning water polo, with emphasis on personal skill, offensive and defensive team play.
- 62.10H Advanced Life Saving** 2 Q.H.
(Prereq. 62.10B or equiv.)
Instruction in Red Cross life-saving skills, techniques, and theory. Red Cross certification is possible.
- 62.10L Water Safety Instructor** 2 Q.H.
(Prereq. 62.10B, 62.10K)
Instruction in techniques, theory, and teaching methods in swimming and life-saving courses. Red Cross certification is possible.
- 62.10M Beginning Scuba** 2 Q.H.
(Prereq. 62.10B or equiv.)
Instruction in basic skin-diving and scuba-diving skills, with emphasis on personal safety.
- 62.10R Small Crafts** 1 Q.H.*
Introduction to basic skills in sailing.
- 62.12A Folk and Square Dance I** 1 Q.H.
Introduction to folk and square dance at the beginning and intermediate levels.
- 62.12E Modern Dance I** 1 Q.H.
Introduction to modern dance technique and style.
- 62.12F Modern Dance II** 1 Q.H.
(Prereq. 62.12E or equiv.)
A continuation of 62.12E with progression to more complex modern dance techniques and movement combinations. Practice in the use of improvisation for exploring dance movement.
- 62.12G Modern Dance III** 1 Q.H.
(Prereq. 62.12F or equiv.)
A continuation of 62.12F with progression into the expressive and choreographic use of modern dance techniques.
- 62.12H Ballet I** 1 Q.H.
Introduction to the fundamentals of classical ballet; its vocabulary, structure, and style.

93.231 Field Experience in Human Services II
(Prereq. 93.230 and senior status, 4 Q.H.
permission only)
Continuation of 93.230.

- 62.12J Ballet II** 1 Q.H.
(Prereq. 62.12H or equiv.)
A continuation of 62.12H. Progression into the expressive and choreographic use of classical ballet techniques.
- 62.12K Ballet III** 1 Q.H.
(Prereq. 62.12S)
A continuation of 62.12J with an in-depth study of complicated variations derived from the classical ballet technique.
- 62.12L Jazz Dance I** 1 Q.H.
Introduction to jazz dance techniques and styles.
- 62.12M Jazz Dance II** 1 Q.H.
(Prereq. 62.12L or equiv.)
A continuation of 62.12L with progression to more complex jazz dance techniques and combinations.
- 62.12N Jazz Dance III** 1 Q.H.
(Prereq. 62.12M or equiv.)
A continuation of 62.12M and progression into the choreographic process of jazz dance.
- 62.12P Rhythmic Analysis** 1 Q.H.
(Prereq. Physical education major or permission)
Analysis of rhythm as it applies to movement skills and basic dance.
- 62.12Q Ballroom and Disco Dance** 1 Q.H.
An introduction to ballroom dance and contemporary disco dancing.
- 62.12R Ballroom Dance** 1 Q.H.
An introduction to traditional and contemporary ballroom dance.
- 62.12S Dance Improvisation/Composition** 1 Q.H.
(Prereq. 62.12E, H, or L)
Practice in the use of dance as a medium for artistic expression. Emphasis on the development of skill in the use of improvisational techniques. The student is expected to participate in creating and structuring short dance compositions.
- 62.13P Gymnastics Orientation** 1 Q.H.
Basic approach to tumbling, vaulting, and trampoline. Designed to assist the nongymnast.
- 62.13V Beginning Gymnastics I** 1 Q.H.
(Prereq. 62.13P or equiv.)
A coeducation approach to knowledge and basic skills in floor exercise, vaulting, balance beam, parallel bars, uneven bars, high bar, and rings.

62.13W Women's Gymnastics II 1 Q.H.
(Prereq. 62.13V)
Focus is on knowledge and skill necessary in performing the beginning compulsory routines on the balance beam, floor exercise, uneven bars, and vaulting.

62.13X Women's Gymnastics III 1 Q.H.
(Prereq. 62.13W)
Skill and knowledge related to the performance of optional routines in the four areas of competitive women's gymnastics.

62.13Y Men's Gymnastics II 1 Q.H.
(Prereq. 62.13V)
Knowledge and skill related to the performance of beginning compulsory routines on the high bar, side horse, rings, floor exercise, parallel bars, and vaulting horse.

62.13Z Men's Gymnastics III 1 Q.H.
(Prereq. 62.13Y)
Skill and knowledge related to performance in optional routines on the high bar, side horse, rings, floor exercise, parallel bars, and vaulting horse.

62.14A Badminton 1 Q.H.
Instruction in basic badminton strokes, concepts, rules, strategies, and game play.

62.14C Tennis 1 Q.H.
Instruction in basic tennis strokes, concepts, rules, strategies, and game play.

62.14E Intermediate/Advanced Badminton 1 Q.H.
(Prereq. 62.14A)
Instruction in badminton, including intermediate and advanced skills, with emphasis on singles and doubles match play and strategy.

62.14G Intermediate/Advanced Tennis 1 Q.H.
(Prereq. 62.14C or equiv.)
Instruction in tennis, including intermediate and advanced skills, with emphasis on singles and doubles match play and strategy.

62.15A Movement Education 1 Q.H.
Concepts and techniques in movement education and exploration for elementary school educators.

62.15B Beginning Archery 1 Q.H.
Selected skills in target shooting and practical experience in archery games, novelty events, and conduct of tournaments.

62.15D Beginning Bowling 1 Q.H.*
Focus is on development of knowledge and skill necessary for competent performance in bowling at the beginning level. Practice provided in nearby commercial alleys.

62.15F Beginning Golf 1 Q.H.
Instruction in fundamental golf skills, knowledge of clubs and their use, and golf etiquette.

* Lab fee required.

62.15H Beginning Self-Defense 1 Q.H.
A survey of the principles and fundamental skills. Instruction is geared to the beginning and intermediate levels.

62.15I Karate 1 Q.H.
Fundamental techniques of unarmed combat for self-defense using the punches, kicks, and blocks of Tae Kwan Do/Karate.

62.15J Beginning Boxing 1 Q.H.
Instruction in boxing at the beginning level; emphasis on offensive and defensive techniques, scoring, training, and officiating.

62.15K Beginning Wrestling 1 Q.H.
Beginning level of instruction in basic wrestling maneuvers. Stress on fundamental breakdowns, escapes, takedowns, rides, and pinning combinations. Rules and scoring procedures discussed and modified matches conducted.

62.15M Beginning Fencing 1 Q.H.
Instruction in basic foil fencing, including introduction to competition.

62.15N Intermediate/Advanced Foil Fencing 1 Q.H.
(Prereq. 62.15M or equiv.)
Instruction in intermediate-advanced techniques of foil fencing, with special emphasis on competition, judging, and the use of electrical equipment.

62.15Q Karate II 1 Q.H.
(Prereq. 62.15I)
Continuation of 62.15I, with progression to more complex techniques and combinations of punches, kicks, and blocks related to Tae Kwan Do/Karate.

62.15R Roller Skating 1 Q.H.
Instruction for beginners in recreational roller skating skills.

62.15S Beginning Ice Skating 1 Q.H.
Instruction for beginners in recreational ice skating skills.

62.15T Figure Skating 1 Q.H.
(Prereq. 62.15S or permission)
Instruction in beginning and intermediate figure skating skills.

62.15Y Yoga 1 Q.H.
Introduction to yoga skills and techniques for men and women at the beginning level.

62.16B Weight Training 1 Q.H.
Introduction to the principles and use of resistive exercises: isotonic exercise (weights), isometric exercise, and the appropriateness of each.

62.16C Physical Conditioning 1 Q.H.
Assessment of physical fitness and body composition. Instruction in training techniques. Special emphasis on personal exercise and dietary needs.

62.16I Beginning Cross-Country Skiing 1 Q.H.
Instruction in the fundamental techniques of cross-country skiing.

62.16L Beginning Track and Field 1 Q.H.
Instruction in the fundamental skills in the various track and field events.

62.16M Intermediate/Advanced Track and Field
(Prereq. 62.16L or equiv.)

Instruction in intermediate-advanced techniques in track and field events. Emphasis is placed on improvement of individual skills; techniques of officiating are discussed.

62.16P Beginning Handball 1 Q.H.
Knowledge and skills appropriate to handball at the beginning level.

62.16R Beginning Racquetball 1 Q.H.
Knowledge and skills appropriate for performance in racquetball at the beginning level.

62.16S Beginning Skiing 1 Q.H.
The course offers instruction in fundamental techniques of downhill skiing.

62.16T Intermediate Skiing 1 Q.H.
(Prereq. 62.16S)

The course provides instruction in downhill skiing including intermediate and advanced techniques with emphasis on skill development.

62.17C Basketball 1 Q.H.
Knowledge and skills appropriate for performance in basketball at the beginning level.

62.17D Intermediate/Advanced Basketball 1 Q.H.
(Prereq. 62.17C)

Knowledge and skills appropriate for performance in basketball at the intermediate to advanced levels.

62.17J Volleyball 1 Q.H.
Knowledge and skills appropriate for playing volleyball at the beginning level.

62.17L Field Hockey 1 Q.H.
Knowledge and skills appropriate for playing field hockey at the beginning level.

62.17P Football 1 Q.H.
Fundamental skills and knowledge appropriate for beginning level performances in football.

62.18C Softball 1 Q.H.
Knowledge and skill appropriate for performing in softball at the beginning level.

62.18E Baseball 1 Q.H.
(Prereq. 62.18C or consent)

Knowledge and skill appropriate for baseball at the intermediate and advanced levels.

62.18G Women's Lacrosse 1 Q.H.
Knowledge and skill appropriate for performance in lacrosse at the beginning level.

62.18J Men's Lacrosse 1 Q.H.
Knowledge and skill appropriate for performance in lacrosse at the beginning level.

62.18M Soccer 1 Q.H.
Knowledge and skill appropriate for performance in soccer at the beginning level.

62.19A Early Childhood Motor Skill Development 2 Q.H.

A study of the development of fundamental motor patterns (run, catch, kick, strike, jump, throw) from ages 0 to 5 years, including perceptual-motor relations operating in vision, audition, and proprioception.

62.19B Games and Activities for Children 2 Q.H.
Introduction to simple ball games, running and tag games, self-testing activities, movement exploration, and rhythms appropriate for children. Course content appropriate for future parents, teachers, and youth leaders.

62.200 Human Movement 3 Q.H.
An introduction to the nature and role of human movement and the analysis of skillful movement performance through participation and observation. Introduction to the objectives, literature, and organization of the profession of physical education.

62.202 Life/Career Planning 3 Q.H.
An examination and exploration of careers in physical education and related fields. The course provides an opportunity for students to assess personal skills and abilities, to research jobs of interest, and to practice specific career-planning skills.

62.204 Psychology of Sport 2 Q.H.
(Prereq. P.E. or consent)

The psychological analysis of behavioral patterns and deviations of sports participants, including spectators and coaches. Emphasis on emotions, motivation, competition and learning factors. Discussion of current sports highlights.

62.205 Group Dynamics I 3 Q.H.*
(Prereq. 62.202)

An introduction to group dynamics through selected activities, discussion, and living and working together. A resident-living experience for one week at the Warren Center is an integral part of the course.

62.206 First Aid 2 Q.H.
First-aid procedures recommended for the home, school, and community. Emphasis on practices endorsed by the American Red Cross.

62.208 Sociology of Sport and Dance 2 Q.H.
(Prereq. Consent of instructor)

The study of sport and dance as a social institution, including theories explaining the role of each in contemporary society and the part of each in evolving societies.

62.209 History and Philosophy of Physical Education 3 Q.H.
A survey of physical education from ancient times to the present. The influence of major

philosophical positions upon the nature of physical education programs is analyzed.

62.211 Comparative Physical Education 3 Q.H.
(Prereq. 62.210 or 50.152)

Analysis of systems of physical education and sport in selected countries and their interrelations with the larger cultural framework.

62.212 Theory of Coaching 2 Q.H.
(Prereq. Consent of instructor)

An analysis of learning principles, sociology, and psychology as applied to coaching individual, dual, and team sports. Techniques and standards of squad recruitment, organization, leadership, and coaching ethics are presented.

62.216 Elementary School Activities 3 Q.H.

Focus is on introductory knowledge and skills necessary for teaching physical education to elementary school aged children. Students are expected to learn analysis and application of children's performance and appropriate teaching techniques through observation and actual experience in off-campus schools and learning centers. Course is designed to partially satisfy the prepracticum requirements for teacher certification at the K-9 level. **

62.217 Theory of Play 2 Q.H.

The nature of play and a study of cross-cultural patterns of play. An investigation of selected theories of play, including Huizinga, Callois, Sutton-Smith, and Lee.

62.219 Secondary School Activities 3 Q.H.

Physical activity appropriate for secondary school youth is studied in relation to their level of development and interest. Students are expected to learn analysis and application of pupil's performance and appropriate teaching techniques through observation and actual experience in off-campus schools and learning centers. Course is designed to partially satisfy the prepracticum requirements for teacher certification at the grades 5-12 level. **

62.220 Perceptual-Motor Development 4 Q.H.
(Prereq. 50.121 and 50.131; may be taken concurrently.)

Course offers a study of the development of motor skills from birth through infancy, early childhood, adolescence, and adulthood, including skilled performance of the aged. Age expectations for perceptual-motor behavior are considered, with a focus on a functional adequacy in skilled performance. ***

62.221 Perceptual-Motor Learning and Development 3 Q.H.
(Prereq. 50.121)

Interrelationships of movement behavior and perceptual-motor organizations of vision,

audition, and proprioception. A brief overview of major theories of learning as they apply to learning motor skills.

62.222 Perceptual-Motor Learning 4 Q.H.
(Prereq. 19.149, 19.156, 19.157)

A focus on the way information processing is involved in perceptual-motor learning and performance. Basic research data are applied to learning and executing skills in a variety of sports settings.

62.24B Swimming Analysis 2 Q.H.
(Prereq. 62.10B or consent of instructor)

Instruction in theory, analysis techniques, and teaching methods in swimming.

62.24E Analysis and Coaching of Men's Gymnastics 2 Q.H.
(Prereq. 62.13Z)

Skill analysis and coaching of men's gymnastics, with emphasis on appropriate teaching methods, new trends, and judging.

62.24F Analysis and Coaching of Women's Gymnastics 2 Q.H.
(Prereq. 62.13X)

Skill analysis and coaching of women's gymnastics, with emphasis on appropriate teaching methods and new trends.

62.24G Advanced Analysis and Judging of Women's Gymnastics. 2 Q.H.
(Prereq. 62.13W)

Advanced skill analysis techniques and instruction in judging women's gymnastics. May serve as preparation for judging certification.

62.24H Analysis and Coaching of Badminton 2 Q.H.
(Prereq. 62.14E)

Analysis of performance and methods of teaching and coaching in badminton.

62.24J Analysis and Coaching of Tennis 2 Q.H.
(Prereq. 62.14G)

Analysis of performance and methods of teaching in tennis.

62.24K Analysis and Coaching of Fencing 2 Q.H.
(Prereq. 62.15N)

Advanced skill analysis and coaching of fencing. Special emphasis on current research and teaching methods.

62.24L Analysis and Coaching of Golf 2 Q.H.*
(Prereq. 62.15F or equiv.)

Advanced skill analysis and coaching of golf. Special emphasis on course play and teaching methods.

62.24M Analysis and Coaching of Track/Field 2 Q.H.
(Prereq. 62.16M or equiv.)

Advanced skill analysis and coaching techniques for selected track and field events. Special emphasis is placed on the analysis of

** Teacher Certification Requirements available in 106 Dockser Hall.

*** Designed to partially satisfy prepracticum requirements for teacher certification.

* Lab fee required.

common movement patterns, teaching methods, and coaching techniques.

62.24N Analysis and Coaching of Wrestling
(Prereq. 62.15K or equiv.) 2 Q.H.

Analysis of performance and techniques of teaching selected wrestling skills are covered in detail. Application of research to methodology is stressed.

62.24P Analysis and Coaching of Baseball 2 Q.H.
(Prereq. 62.18E)

The basic techniques and responsibilities of coaching interscholastic and intercollegiate baseball, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

62.24Q Analysis and Coaching of Basketball
(Prereq. 62.17C) 2 Q.H.

The basic techniques and responsibilities of coaching interscholastic and intercollegiate basketball, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

62.24R Analysis and Coaching of Field Hockey
(Prereq. 62.17L) 2 Q.H.

The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate field hockey, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

62.24S Analysis and Coaching of Football 2 Q.H.
(Prereq. 62.17P)

The basic techniques and responsibilities of coaching interscholastic and intercollegiate football, including advanced skill analysis, team conditioning, offensive and defensive systems, practice organization, team management, and coaching staff organization.

62.24V Analysis and Coaching of Lacrosse
(Prereq. 62.18G or 62.18J) 2 Q.H.

The basic technique and responsibilities of coaching intramural, interscholastic, and intercollegiate lacrosse, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

62.24W Analysis and Coaching of Soccer 2 Q.H.
(Prereq. 62.18M)

The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate soccer, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

62.24X Analysis and Coaching of Softball 2 Q.H.
(Prereq. 62.18C)

The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate softball, including advanced skill analysis and management.

62.24Y Analysis and Coaching of Volleyball
(Men-Women) 2 Q.H.
(Prereq. 62.17J)

The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate volleyball, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

62.24Z Analysis and Coaching Special Problems
(Prereq. Permission Dept. Chairperson) 2 Q.H.

Designed as directed study in a sport or activity not offered by the Department or in special scheduling situations.

62.248 Clinical Athletic Training 2 Q.H.
(Prereq. 62.256)

The student athletic trainer's introduction to clinical experience with an opportunity to practice the various skills for evaluation and treatment of the injured athlete.

62.250 Anatomy and Physiology I 4 Q.H.
Gross anatomy and physiology of the human skeletal, joint, nervous and muscular systems.

62.251 Anatomy and Physiology II 4 Q.H.
(Prereq. 62.250)

Gross anatomy and physiology of the human respiratory, endocrine, and circulatory systems; metabolism, calorimetry, and other topics will be covered.

62.253 Kinesiology 4 Q.H.
(Prereq. 62.250 or equiv.)

Science of human motion and anatomic and mechanical principles as they relate to an understanding of skillful, efficient, and purposeful human motion. Introduction to the cinematographic analysis.

62.254 Exercise Physiology 4 Q.H.
(Prereq. 62.251)

Study of the immediate and long-range effects of exercise upon the human body, with emphasis on the cardiovascular and respiratory systems, muscles, and metabolism; physical fitness, body composition, and selected components of motor performance—assessment techniques and training principles. Introduction to indirect, open-circuit calorimetry and EKG monitoring.

62.255 Adapted Physical Education I 4 Q.H.
(Prereq. 62.222, 62.250, 62.253)

Survey of characteristics and attitudes pertaining to special-needs individuals, with particular emphasis on their effects on current physical activity programs. Observations of special-needs programs are included. ***

62.258 Athletic Training and Conditioning 3 Q.H.
The training and conditioning procedures in athletic programs; special emphasis on the prevention of athletic injuries; role of the trainer, athlete, coach, and health service.

- 62.257 Advanced Athletic Training** 4 Q.H.
(Prereq. 62.256)
The advanced preparation and utilization of conditioning programs and their administration for prevention and care of injuries associated with competitive athletics.
- 62.259 Laboratory in Exercise Testing and Prescription** 4 Q.H.
(Prereq. 62.254)
Practicum in assessment of physical work capacity, cardiac function, muscular strength, muscular endurance, flexibility, and body composition; prescription of exercise programs used to improve the above functions; volunteer work as an exercise test technician and exercise leader in a fitness class.
- 62.260 Measurement and Evaluation** 4 Q.H.
Construction, use, selection, and interpretation of evaluative tools applicable to physical education; elementary statistical methods.
- 62.263 Kinesiology II** 4 Q.H.
(Prereq. 62.253)
A continuation of Kinesiology I, with emphasis on the mechanical aspects of human motion. The internal and external forces acting upon a human body, and the effects produced, will be examined.
- 62.265 Adapted Physical Education II** 4 Q.H.
(Prereq. 62.255)
Assessment, diagnostic, and prescriptive procedures in special-needs physical education programs. Emphasis is on modification techniques and integration of programming in accord with legislative guidelines. Practicum experiences in special-needs settings are included.
- 62.267 Principles of Physical Activity for the Older Adult** 4 Q.H.
Principles of physical activity and the organizations of physical activity programs for the elderly in public and private agencies are studied. Research and practical applications of theory are required.
- 62.270 Administration of Physical Education** 4 Q.H.
(Prereq. 62.209 or 62.210)
The organization and administration of programs in physical education, with emphasis on the elementary and secondary school program.
- 62.271 Theory of Officiating** 2 Q.H.
Knowledge and skills in the basic concepts of officiating individual and team sports.
- 62.272 Officiating Skills** 1 Q.H.
(Prereq. 62.271 or permission)
Study of the knowledge and skills necessary for a beginning official in a sport selected by the student.
- 62.273 Sports Officiating** 2 Q.H.
Theory, practice, and techniques of officiating in

such sports as basketball, baseball, soccer, ice hockey, lacrosse, and football.

- 62.274 Sports Officiating** 2 Q.H.
Theory, practice, and techniques of officiating in such sports as basketball, volleyball, softball, soccer, field hockey, lacrosse.
- 62.276 Critical Teaching Skills** 4 Q.H.
(Prereq. 62.216 or 62.219)
Course offers the analysis of direct and indirect, verbal and nonverbal teaching methods for classroom and activity teaching, using techniques such as microteaching, peer teaching and simulation. Techniques for measuring teacher behavior, such as interaction analysis, are studied and analyzed. A laboratory experience in an education setting is an essential activity.***
- 62.278 Group Dynamics II** 2 Q.H.
(Prereq. 62.205)
Exposure to outdoor activities, along with involvement in Project Adventure and other outdoor pursuits, to teach various skills.
- 62.280 Curriculum Development** 3 Q.H.
(Prereq. 62.275 or consent of instructor)
Course focuses on basic foundations of curriculum development, stressing fundamental principles and guides to curriculum organization, format, and evaluation. Course material includes experience using the taxonomies of education objectives and survey of existing curricula and current curriculum trends.
- 62.281 Supervised Field Experience** 12 Q.H.
(Prereq. Senior status in major or consent)
Course offers assignment in a field setting related to the student's area of concentration within the physical education curriculum, including observation and performance of professionally related skills under the guidance of a cooperating field professional and a college supervisor. To be taken by physical education majors who are not in a teacher certification program.
- 62.282 Supervised Student Teaching (Practicum)** 12 Q.H.
Course provides a minimum of at least 300 clock hours in an approved school, with clear instructional responsibilities for at least half of the time and full teaching responsibilities for a substantial period of time under the guidance of a certified cooperating teacher and college supervisor. The assignment must be at the level of teacher certification sought (K-9 or 5-12) and include coaching and/or intramural organization and supervision, evaluation conferences, and seminars. Final preparation for Certificate No. 30 Teacher of Physical Education, as granted by the Commonwealth of Massachusetts.**

*** Designed to partially satisfy prepracticum requirements for teacher certification.

** Teacher Certification Requirements available in 106 Dockser Hall.

62.283 Modern Dance Composition 3 Q.H.
(Prereq. 62.12F or consent of instructor)
An analysis of dance composition, with practice in choreography for solo, duet, and trio.

62.284 Dance History and Philosophy 4 Q.H.
A survey of dance from ancient times to the present. Consideration of dance as an art form in relation to other art forms and as an educational discipline.

62.286 Dance: Choreography and Production 4 Q.H.
Choreography for trio, quartet, and large groups based upon the projection of an idea or mood. Theory and practice in the staging of student choreography, including lighting, costuming, scenery, and makeup.

62.287 Jazz Dance Composition 3 Q.H.
(Prereq. 62.12M)
Theory and practice in the use of eurhythmics as applied to jazz movement. Progression to dance composition for jazz theatre and musical comedy.

62.289 Creative Dance I 2 Q.H.
(Prereq. 62.12F or equiv.)
Theory and practice of methods and materials in teaching creative dance to elementary school children. Examination of the aims and responsibilities of dance education at the primary level.

62.290 Creative Dance II 2 Q.H.
(Prereq. 62.12F or equiv.)
Theory and practice of methods and materials in teaching creative dance to secondary school children. Examination of the aims and responsibilities of dance education at the secondary level.

62.291, 62.292, 62.293 Special Programs 2, 3, or 4 Q.H.
(Prereq. Consent of Dept. Chairperson)
The course focuses on independent investigation of physical education in an area of each student's interests. The investigation will be supervised by an appointed faculty member and will culminate in a formal written report.

Recreation and Leisure Studies

63.121 Guitar I 1 Q.H.
An introduction to using the guitar in recreation programs. Skill development includes basic chords, progressions, and strumming techniques.

63.12P Sports Leadership 2 Q.H.
The exploration of teaching techniques involved in team, dual, and individual sports. Methods, such as the part-whole, or whole-part, are presented and investigated to establish relevance to each of the sports areas under study. Students are given the opportunity to develop skills in planning units and individual lessons. In addition, students are expected to apply practical experience by teaching one lesson in each of the sports areas studied.

63.12Q Survey of Aquatics 2 Q.H.
Exploration of various aquatic events that may enhance recreational swimming programs. Students are given the opportunity to develop planning, execution, and evaluation techniques for each area of study. In addition, students may attend and evaluate a planned water event. Areas of study include party events for all ages, competitive swimming and diving, synchronized swimming, water polo, and events for the atypical.

63.12T Photography 1 Q.H.
A basic study including the history of photography, types of cameras, use of black and white and color film; use of F-stops and shutter speeds, darkroom equipment, supplies and procedures. Field trips exploring photography techniques and darkroom experiences are included.

63.12Y Introduction to Winter Skills 1 Q.H.

Course investigates several winter sports, their origins and history, current population demands, and future trends. Various types of equipment and their use, as well as special health and safety considerations for winter sports are discussed. Sports to be studied include cross-country skiing, snowshoeing, skating, tobogganing, and snowmobiling.

63.124 Camp Leadership 2 Q.H.
One-week resident camp experience at the Warren Center. Course subjects in the student-faculty planned program include natural science, basic sailing and canoeing as well as campcraft skills, outdoor sports, and social recreation for special day and evening programs. Resident fee required.

63.128 Survey of Recreation Facilities 3 Q.H.
Study of fundamental management and administration concepts for a wide variety of outdoor areas and facilities such as parks, beaches, ice rinks, marinas, camps, and community centers.

63.129 School Camping 3 Q.H.
(Prereq. 63.171 or permission of instructor)
Investigation of outdoor education as it applies to school camp organization, administration, program planning, and educational significance. Each student is required to participate in a one-week supervised practical experience at a designated school camp.

63.139 Life/Career Planning 4 Q.H.
This course is designed to help students develop life/career planning skills for use in pursuit of a career in recreation and leisure studies. A variety of careers, co-op job opportunities, and lifestyles of professionals in the

field are explored. Students are given the opportunity to assess their own interests, values, needs, and skills and to develop job-finding skills, including résumé writing and interviewing techniques.

63.140 Basic Sailing 2 Q.H.

Instruction leading to an opportunity to qualify for Red Cross Basic Sailing Certification. Classes are held at the Warren Center and include theory and practical experience.

63.141 Basic Canoeing 2 Q.H.

Instruction leading to an opportunity to qualify for Red Cross Basic Canoeing Certification. Classes are held at the Warren Center and include theory and practical experience.

63.144 Tripping and Orienteering 2 Q.H.

Practical experience in the art of orienteering, including its uses in camping, backpacking, and resident camping. Course is held at the Warren Center and includes overnight excursions. Fee charged.

63.145 Winter Sports 2 Q.H.

Five-day resident session. The course provides daily instruction in Alpine and cross-country skiing. Includes predeparture seminars. Separate fees are charged for room, board, transportation, lifts, lessons, and equipment rental.

63.146 Camp Administration 3 Q.H.

The course offers investigation of camp management guidelines including site development, health and safety, hiring and staff training, public relations, American Camping Association standards, legal regulations, organization within camps, programs, and other selected administrative aspects.

63.147 Outdoor Education for the Handicapped 3 Q.H.

Program planning and methods of conducting programs relating to adaptation of facilities and activities necessary for the physically and mentally disabled are explored through observations, participation, and direct laboratory experience.

63.148 Introduction to Recreation and Leisure 3 Q.H.

The course provides an overview of the recreation and leisure service field with emphasis on history, scope, rationale, setting, program and services, basic trends and issues, and future considerations. The course explores the basic elements of the recreation and leisure service field as they relate to society, the leisure profession, and the individual.

63.153 Social and Psychological Impacts of Illness and Disabilities 4 Q.H.

(Prereq. 63.162)
Exploration of relevant issues related to

disability such as societal understanding of disability, handicapping conditions, adjustment, social networks, and the therapeutic use of self through a mixture of lectures, group discussion, guest speakers, and films. Examination of self in the role of change agents and care providers.

63.154 Basic Rockclimbing and Rappelling 2 Q.H.*

A training program designed to introduce potential rockclimbing leaders to all necessary facets of the sport. While successful completion of the program does not qualify a student to lead rockclimbing trips, it may help students to gain a better perspective on both the necessary skills and the leadership role in rockcraft. The program consists of a weekend of practical experience and two introductory discussion sessions at Bouvé. Program areas include activities and information regarding basic climbing and rappelling experience, knots, safety, belaying, equipment usage and care, and leadership. The lab fee includes lodging, meals, equipment use, and instruction.

63.155 Leisure and Lifestyles 4 Q.H.

The course focuses on aspects contributing to lifestyles and the role of leisure. Specific lifestyles are examined through case studies and guest presentations. Students have the opportunity to examine the effect of leisure on their present lifestyles and future aspirations.

63.156 Foundations of Psychiatric Services in Therapeutic Recreation 4 Q.H.

(Prereq. 19.105, 63.153, or permission from the instructor)

The course focuses on orientation to the foundations of mental health and variables affecting mental illness; examination of various psychiatric disorders and treatment modalities and the role of activity therapy in the treatment of mental illness; review of contemporary trends in psychiatry that pertain to therapeutic recreation.

63.157 Therapeutic Recreation with Developmentally Disabled Persons 4 Q.H.

Course offers a review of major phases of normal growth and development for the purpose of understanding the causes and impact of developmental disabilities. Emphasizes role of play experiences in achieving sequentialized skills and concepts, practices and procedures employed in program design.

63.161 Foundation of Leadership in Leisure Service 4 Q.H.

The course offers study of the basic principles of leadership relevant to the fundamentals of leadership in leisure services. Subjects include leadership styles, motivation, task sequencing, behavioral objectives, adaptation, and evaluation.

63.162 Overview of Physical Disabilities 4 Q.H.

The course offers a study of the humanistic approach to people with physical disabilities including amputations, traumatic conditions, sensory impairments, neurological, orthopedic, and cardiovascular disorders. Rehabilitation procedures and treatment, adjunctive therapies, prosthetics, orthotics, assistive devices and techniques, and reentry into the community from the individual, familial and societal perspectives are discussed.

63.163 Concepts of Leisure: Sociopsychological Perspectives 4 Q.H.

The course focuses on exploration of the various sociopsychological perspectives of leisure and the relationships of mores, social structure, roles, values, and personality as they affect leisure expression. Investigation of other pertinent social and environmental factors which contribute to the phenomenon of leisure is included.

63.164 Leadership and Organization of Wilderness Recreation 4 Q.H.

The course offers in-depth investigation of the leadership, organization, planning, implementation, and evaluation of outdoor pursuits. Particular emphasis is placed on multi-day experiences in remote or wilderness settings. An extended outdoor practicum in a wilderness setting is required.

63.165 Program Planning in Recreation 4 Q.H.

The course focuses on examination of program content, leadership, administration, and facilities associated with the effective delivery of leisure services under the auspices of public, private, religious, industrial, and voluntary agencies.

63.166 Arts and Crafts for Leisure 2 Q.H.

The course provides students the opportunity to discover, acquire, and adapt various craft skills such as inexpensive crafts, sculpture, painting, etc. The planning and programming of craft sessions are also covered.

63.167 Social Dance Leadership 2 Q.H.

The course offers a survey of folk, square, and ballroom dance appropriate for use with a wide range of age groups. Included are development of appreciation and understanding of the values and program potential of social dance; on-site experience and general techniques of leadership.

63.168 Budget Analysis 4 Q.H.

The course focuses on the study and use of analytical techniques which can improve budgeting decisions. Topics include cost-effectiveness and benefit-cost analysis, efficiency measures, pricing, forecasting, and present-value analysis for solution of capital and operating budget problems in the nonprofit and commercial recreation sectors.

63.169 Program Planning in Therapeutic Recreation 4 Q.H.

The course examines advanced planning of comprehensive therapeutic recreation services. Focus is on systems approach to planning for individuals and groups. Included are an intensive examination of the philosophy of therapeutic recreation; the study of the functional elements of activities, current legislation, and standards for service delivery.

63.170 Interpretation of Ecological and Social History 4 Q.H.

The course examines the employment of site visitations and problem-solving methods to investigate human interaction with and manipulation of the physical, biological, and social environment. The course provides the opportunity to acquire knowledge of ecosystem aspects which can be applied to environmental interpretation and decision-making sectors of ecosystem and recreation management.

63.171 Environmental Education 4 Q.H.

The study of the philosophy and history of environmental education in political, social, and educational movements. Exploration of methods of developing, teaching, and evaluating environmental education curricula applicable to schools, camps, parks, and environmental centers.

63.172 Seminar on Environmental Issues and Legislation 4 Q.H.

The course offers study of the development of attitudes toward the environment and critical investigation of the history of the environmental movement. Investigation of current environmental issues and laws affecting our ecosystem and lifestyles through integrating theories from sociology, ecology, economics, and politics. Exploration of degrees of ecological and social constraints on future growth and definition of alternative futures.

63.173 Leisure and the Community School 4 Q.H.

The course provides exploration (through class lectures, discussions, readings and on-site visitations) of the theoretical, operational, and motivating aspects of the community school concept. An opportunity to investigate the complex role played by leisure in the community school.

63.174 Elements of Outdoor Recreation Planning 4 Q.H.

The course offers exploration of the nature and significance of the outdoor recreation experience and how our natural resources can optimally meet people's needs. Focus is on the elements of outdoor recreation planning: identification, evaluation, assessment and implementation. Relationship of social groups, natural resources, and environmental concerns to outdoor recreation planning are included.

63.212 Leisure Counseling**4 Q.H.**

This course provides students an opportunity to develop fundamental group counseling skills through the use of specialized strategies and traditional verbal counseling techniques. Major focus is on lifestyle awareness counseling.

63.249 Process of Aging**3 Q.H.**

The course covers the study of phases of aging; discussion of the physical, social, and emotional changes and problems which face the aged; the study of types of services offered to senior citizens and the sources of funds allocated to sponsor such services. The role of recreation is emphasized.

63.250 Group Dynamics**3 Q.H.**

The study of human behavior in groups is approached through lectures, reading, and structural group experiences. Major areas of concentration include communication, leadership, decision making, and evaluation of the group process.

63.257 Workshop Design**3 Q.H.**

The course provides supervised practical experience in developing, implementing, and evaluating a workshop.

63.260 Administration of Recreation and Parks**4 Q.H.**

The course focuses on administration procedures of tax-supported recreation and park operations. Concentration on legality commissions, area and facility design, personnel policies, and problem solving related to administration and management.

63.261 Commercial Recreation Management**4 Q.H.**

Course offers an examination of commercial and private sector recreation services. Case studies, workshops and practical problems are related to managing leisure opportunities for resorts, country clubs, theme parks, tourism, sports clubs, manufacturing and merchandising, and industrial recreation.

63.264 Program Evaluation in Recreation**4 Q.H.**

The course examines comprehensive systems for evaluating program effectiveness as it relates to the consumer of recreation services. Major emphasis placed on developing an evaluation system for an agency of the student's choice. Case studies are drawn from the public, nonprofit, and commercial sectors.

63.268 Urban Recreation**4 Q.H.**

The course provides an examination of the different cultural and sociological patterns of various ethnic groups who live in an urban setting. Various recreational activities are suggested for each group. Other pertinent recreational issues common to the urban community are studied.

63.279 Internship Seminar**1 Q.H.**

Course offers preparation for professional field assignment in a leisure service setting. Focus is on identification and assessment of student career goals, analysis of previous volunteer and/or employment experiences, professional involvement, and facilitation of the internship placement process.

63.280 Internship in Recreation and Leisure Services**16 Q.H.**

Professional field assignment in leisure service settings designed to prepare students for professional career choices. Supervision by faculty, conferences with professional staff, and seminars. Ten week Internship.

63.285 Research Methods**4 Q.H.**

Study of basic statistics, the use of experimental and quasi-experimental design, sampling, instrumentation, data collection, and analysis as applied in recreation and leisure studies.

63.290 Research Applications**4 Q.H.**

The course examines the use of research methods in selected professional applications, ranging from the ongoing research of Departmental faculty to student originated studies.

63.291, 63.292, 63.293, 63.294 Independent Study

Under the guidance and direction of a program adviser, students are given the opportunity to conduct projects related to their professional interests. Credit of one, two, three, or four quarter hours.

63.299 Senior Seminar in Contemporary Issues and Trends in Recreation and Leisure**4 Q.H.**

The course offers examination and discussion through extensive literature review of contemporary issues and trends in the field of recreation and leisure. Focus is on critical aspects of leisure services: legislation, consumer advocacy, professional development, research, and innovations for the improvement of service delivery.

Physical Therapy

64.114 Introduction to Physical Therapy 2 Q.H.
The course provides orientation to the field of physical therapy and its role in the health professions; theory and practice in applied body mechanics and basic procedures related to patient management.

64.115 Introduction to Physical Therapy 2 Q.H.
(Prereq. 10.105, 11.171, 11.173, 12.107, 18.143, and 18.142)

The course provides practice in the preparation of patients and equipment for various treatment procedures. Theory demonstration and practice in heat, light, and hydrotherapy.

64.123 Clinical Gross Anatomy 6 Q.H.**
(Prereq. 18.144 and 18.148)

The course covers the structure and function of the human body with particular emphasis on the skeletal, muscular, nervous, and cardiovascular systems. Clinical applications. Lecture and laboratory.

64.125 Physiology for Physical Therapists 3 Q.H.
(Prereq. 18.144, 18.148 and 64.115)

The course covers neuromuscular, cardiovascular, and respiratory physiology applied to physical therapy.

64.130 Clinical Kinesiology 4 Q.H.**
(Prereq. 64.123 and 64.125)

The course covers musculoskeletal function with emphasis on the mechanical and physiological factors involved. Clinical applications to normal and pathological movements.

64.141 Physical Therapy I 2 Q.H.
(Prereq. 18.148, 64.115 and 18.144)

Course offers theory, demonstration, and practice in massage integrated with other treatment procedures. Case studies.

64.142 Physical Therapy II 3 Q.H.
(Prereq. 64.123, 64.125 and 64.141)

The course covers evaluation procedures: theory, demonstration, practice, and planning.

64.143 Physical Therapy III 4 Q.H.
(Prereq. 64.123, 64.125, 64.141 and 64.234)

This course covers basic therapeutic exercise: theory, demonstration, practice, and planning.

64.148 Physical Therapy V (continued) 1 Q.H.
(Prereq. 64.130, 64.142, 64.143, and 64.229)

Topics include neurodevelopmental treatment, neurophysiological theory and clinical application of facilitation and inhibition techniques to enhance motor control as advocated by the Bobaths.

64.149 Clinical Seminar 2 Q.H.
(Prereq. 64.156 and 64.234)

Selected topics related to clinical aspects in

physical therapy. Interpersonal relationships, ethics, and teaching methods.

64.156 Physical Therapy IV 3 Q.H.
(Prereq. 64.130, 64.142, 64.143 and 64.229)

Course covers theory, demonstration, and practice in prosthetics, orthotics, and advanced functional training of spinal cord injured patients.

64.167 Research for Physical Therapy 4 Q.H.
(Prereq. Satisfactory attainment in all prior professional courses)

The course covers introduction to research design, analysis of scientific and medical literature, and preparation of an independent research proposal; electromyography.

64.169 Physical Therapy VII 2 Q.H.
(Prereq. 64.142, 64.229 and 64.251)

The course covers theory, demonstration, and practice in electrical testing and treatment procedures.

64.171 Physical Therapy VI 2 Q.H.
(Prereq. 64.130, 64.142 and 64.143)

Respiratory physical therapy: theory, demonstration, and practice in the management of medical and surgical chest conditions. Introduction to respiratory mechanical equipment and cardiopulmonary resuscitation.

64.173 Physical Therapy in the Health Care System 3 Q.H.
(Prereq. 64.149 and 64.184)

Concepts of rehabilitation and community health. Emphasis is on the role of the physical therapist as a member of the health team. Class discussion and seminar.

64.176 Administration 3 Q.H.
(Prereq. 64.184)

Concepts in administration and management applied to physical therapy.

64.178 Physical Therapy VIII 2 Q.H.
(Prereq. Satisfactory attainment in all prior professional courses)

Analysis and comparison of methods of physical therapy evaluation and treatment, with special emphasis on therapeutic exercise. Treatment planning for various problems, with emphasis on rationale and selection of treatment alternatives.

64.182 Psychosocial Aspects of Illness 3 Q.H.
(Prereq. 64.149 and 64.184)

The course examines interpersonal relationships among patients, families, health professionals, and society with reference to the impact of and reaction to illness.

64.184 Supervised Clinical Education I 5 Q.H.
(Prereq. Satisfactory attainment in all prior professional courses)

An introduction to clinical experience providing the student with opportunities to practice various skills in the evaluation and treatment of patients under supervision. Emphasis is placed on an understanding of treatment planning. Five weeks during Quarter 9 of the junior year in the Boston area.

64.194 Supervised Clinical Education II

(Prereq. Satisfactory attainment in all prior professional courses)

Advanced clinical education providing the student with further opportunities to practice various phases of physical therapy under supervision in preparation for assuming the role of a qualified physical therapist. Assignments in Massachusetts and other states. Twelve weeks during senior year.

Required for graduation from the physical therapy program.

64.229 Clinical Medicine II

3 Q.H.

(Prereq. 64.123, 64.125, and 64.257)

Orthopedic conditions and their medical, surgical, and physical therapy treatment.

64.234 Clinical Psychiatry

2 Q.H.

(Prereq. 19.106; physical therapy students only)

Review of psychiatric categories, including consideration of etiology and treatment. Psychosocial variables significant in the management of patients with whom the physical therapist is concerned.

64.239 Investigative Studies

6 Q.H.

(Prereq. Satisfactory attainment in all prior professional courses)

The course covers selected modules related to current practice in physical therapy; completion of research projects.

64.251 Neuroanatomy

4 Q.H.**

(Prereq. 64.143)

Morphology and function of the human nervous system. Abnormalities of structure and function of the nervous system. Lecture and laboratory.

64.255 Clinical Medicine III

3 Q.H.

(Prereq. 64.229, 64.251, and 64.257)

The course focuses on pediatrics and neurology as related to conditions commonly treated by physical therapists.

64.256 Physical Therapy V

4 Q.H.

(Prereq. 64.130, 64.142, 64.143 and 64.229)

Theoretical basis and clinical application of the neurophysiological approaches to treatment: Brunnstrom, Rood, and Proprioceptive Neuromuscular Facilitation techniques.

64.257 Clinical Medicine I

4 Q.H.

(Prereq. 18.144 and 18.148)

The course covers general medicine, laboratory medicine, and pathology as related to conditions commonly treated by physical therapists.

School and Community Health Education

65.110 Foundations of Health Education

2 Q.H.

Provides opportunities for learners to investigate the broad spectrum of career possibilities in Community and School Health Education and to ascertain their potential roles in the field. Philosophy of health education, the conceptual approach, and trends in health education are considered.

65.114 Mental Health

4 Q.H.

An investigation of mental illness and well-being as they relate to total health, with concern for the factors that influence mental and emotional behavior. Various approaches to mental health education in school programs included.

65.116 Nutrition

4 Q.H.

(Prereq. 12.102, majors only)

This course offers the student the opportunity to learn and evaluate nutrition information both as a future educator and as a consumer. The chemical, biological, and physiological basis of nutrition are explained.

65.117 Public Health

4 Q.H.

History and overview of public health agencies and the organization of services for meeting community health needs at the local, state,

federal, and international levels. Focus is on today's major health problems.

65.118 Drug Use and Abuse

4 Q.H.

The use, misuse, and abuse of drugs in our society, including prescription and nonprescription drugs, alcohol, caffeine, and nicotine are stressed. Physiological, psychological, and sociological effects on humans are considered. A rational perspective from which to explore the relationships among history, prevailing attitudes, environmental differences, and drug-taking behavior is presented.

65.131 Current Issues in Health

4 Q.H.

Focus is on personal health issues; topics may include mental health, human sexuality and reproduction, drug use and abuse, nutrition, communicable and chronic diseases, consumer health and environmental concerns. Emphasis is placed on issues of concern to the participants.

65.140 Longevity and Aging

4 Q.H.

Study of the biological, psychological, and sociological aspects of human aging. Consideration is given to the importance of one's current lifestyle, in relation to the phenomenon of longevity and the quality of life.

65.160 Instructional Resources 2 Q.H.

Introduction to the use of audiovisual media as educational tools. Production of slide presentations, transparencies, bulletin boards, displays, etc. is included. Opportunities are provided for experiences in operating selected equipment.

65.191 Independent Study I 1 Q.H.**65.192 Independent Study II 2 Q.H.****65.193 Independent Study III 3 Q.H.****65.194 Independent Study IV 4 Q.H.**

Designed to provide the student with an opportunity for concentrated planning and research. In-depth study may be carried out in a topic area of health education. Outline of proposed study must be submitted for departmental approval.

65.208 First Aid 2 Q.H.

Instructs students in principles of first aid and skill competencies necessary to care for selected injuries and to meet certain emergencies. Successful completion of the course leads to certification in first aid by the American Red Cross.

65.209 Introduction to Safety 2 Q.H.

(Prereq. 65.110)

Introduces the principles and fundamentals of safety education as they relate to people in their environment. Concerns safety as a social problem; considers major accident areas, accident causes, and liability; and analyzes possible solutions to accident problems.

65.217 Teaching Procedures/Curriculum in Health Education in School and Community 4 Q.H.

The prospective health educator is introduced to health education curriculum, techniques of planning, and pertinent methods and materials in school and community health education.

65.218 Public Health 3 Q.H.

(Pharmacy majors only)

Principles of public health, with particular emphasis on the emerging patterns of community organization, and activities in the public health field.

65.219 Evolving Patterns of Community Health Education 4 Q.H.

Principles of community health, with emphasis on contemporary local, national, and international organizations for meeting health problems; health-care delivery, consumer health issues, environmental health, community resources, and the role of health education in the community.

65.220 Community Health 4 Q.H.

Focus is on today's major community health problems, with an overview of the organization of services for meeting community health needs at the local, state, federal, and international levels.

65.222 Drug Use and Abuse 4 Q.H.

The use, misuse, and abuse of drugs in our society, including prescription and nonprescription drugs, alcohol, caffeine, and nicotine, and the physiological, psychological and sociological effects on humans, are considered. A rational perspective from which to explore the interrelationships among history, prevailing attitudes, environmental differences, and drug-taking behavior is presented. Various approaches to drug education in school/community programs are discussed.

65.223 Human Sexuality and the Family 4 Q.H.

(Prereq. 50.131)

Physical, psychological, social, historical, semantic, and comparative cultural aspects of human sexuality; needs and problems at several stages of maturation, including various approaches to sex education in the school.

65.225 Communicable and Degenerative Diseases 4 Q.H.

The disease immunity process, with emphasis on prevalent communicable diseases in the United States today and their transmission; chronic diseases, cardiovascular diseases, cancer, diabetes, and other constitutional and degenerative diseases and disorders which affect the nation's health. Predominant themes are personal health attitudes and behaviors. Personal health responsibility is analyzed.

65.233 Organization and Administration of School and Community Health Education 4 Q.H.

Principles and methods of organization and administration of school and community health education programs; ethics, personnel, budget, facility management, and priorities.

65.234 Health Problems of Youth 4 Q.H.

Application of health concepts to assist youth in reaching a higher level of wellness through preventive measures. Significant physical, mental/emotional, and social health problems are identified so that they may be intelligently dealt with by health professionals, teachers, and adults concerned about youth.

65.235 Health Counseling 4 Q.H.

The identification of physical, mental, emotional, and social health problems; remedial procedures; and counseling techniques to aid health educators to deal more intelligently with various health problems.

65.238, 65.239 Seminar (each) 2 Q.H.

(Prereq. for 65.238 is 50.141)

(Prereq. for 65.239 is 65.238)

Discussion of current problems and new developments as they relate to health education in school and in a variety of community settings. An introduction to research and scientific writing, culminating in a research project in an area of special interest, is included.

65.240 Student Teaching**12 Q.H.**

(Prereq. 65.217)

Observation and practical teaching experience in public school health education programs. Supervision and evaluation by personnel in cooperating schools and by Boston-Bouve College of Professional Studies and Education faculty; seminars.

65.241 Field Experience**12 Q.H.**

(Prereq. 65.217)

Observation and practical field experience in selected community health education settings. Supervision and evaluation by personnel in cooperating agencies and by Boston-Bouve College of Professional Studies and Education faculty; seminars.

Pharmacy and Toxicology

71.140 Pharmaceutics I(Prereq. 10.107, 11.175, 12.145, and 71.259) **4 Q.H.**

The course focuses on the study of physico-chemical theories and principles and their application to pharmaceutical systems. Topics include intermolecular forces and states of matter; thermodynamics; solutions; ionic equilibria; solubility; complexation; interfacial phenomena; rheology; and coarse dispersions.

71.141 Pharmaceutics II.**5 Q.H.**

(Prereq. 71.140)

The course focuses on the application of the fundamental principles of physical pharmacy to the formulation of pharmaceutical preparations. Emphasis is on pharmaceutical dosage forms, including both industrial formulation and extemporaneous compounding.

71.142 Pharmaceutics Laboratory**2 Q.H.**

(Prereq. 71.141 or concurrent enrollment)

The course focuses on the application of the fundamental principles and techniques of pharmaceutics to the laboratory preparation and use of various pharmaceutical drug products.

71.183 Special Research Project (Clinical Pharmacy)**4 Q.H.**

(Prereq. Permission of instructor and program director)

This is a course of directed study or research in clinical pharmacy, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.184 Special Research Project (Clinical Pharmacy)**4 Q.H.**

(Prereq. Permission of instructor and program director)

This is a course of directed study or research in clinical pharmacy, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.185 Special Research Project (Clinical Pharmacy)**4 Q.H.**

(Prereq. Permission of instructor and program director)

This is a course of directed study or research in clinical pharmacy, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.186 Special Research Project (Clinical Pharmacy)**4 Q.H.**

(Prereq. Permission of instructor and program director)

This is a course of directed study or research in clinical pharmacy, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.193 Special Research Project (Pharmacy Administration)**4 Q.H.**

(Prereq. Permission of instructor and program director)

This is a course of directed study or research in pharmacy administration, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.194 Special Research Project (Pharmacy Administration)**4 Q.H.**

(Prereq. Permission of instructor and program director)

This is a course of directed study or research in pharmacy administration, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.195 Special Research Project (Pharmacy Administration)**4 Q.H.**

(Prereq. Permission of instructor and program director)

This is a course of directed study or research in pharmacy administration wherein the student may undertake in-depth investigation of an area of specialized interest.

71.213 Selected Topics in Clinical Pharmacy I(Prereq. 71.250 and permission of instructor) **4 Q.H.**

Designed to help students increase their understanding of selected diseases. Topics include pathophysiology and diagnosis of the illness, as well as drug therapy and its interrelationship to patient compliance and education.

71.214 Selected Topics in Clinical Pharmacy II(Prereq. 71.250) **4 Q.H.**

Continuation of 71.213. This course exposes students to another group of selected diseases not discussed in 71.213.

71.215 Clinical Pharmacokinetics 4 Q.H.
(Prereq. 71.264 or equiv.)

The course covers application of various pharmacokinetic techniques in estimating dosage regimens, evaluating drug therapy, consulting on drug selection, and assessing bioavailability and bioequivalence data.

71.216 Clinical Nuclear Pharmacy 4 Q.H.
(Prereq. Fifth-year standing or permission of instructor)

The course provides students with an opportunity to acquire in-depth information and hands-on experience in such areas of clinical nuclear pharmacy as radiopharmaceutical kit formulation and tissue distribution. Concepts and ideas fostered in the initial nuclear pharmacy course are applied specifically to the clinical. In addition, unique analytical methods such as neutron activation analysis and autoradiography not usually present in fundamental courses are discussed. Finally, students are afforded the opportunity to present clinical case studies involving nuclear medicine procedures.

71.217 Clinical Aspects of Infectious Disease 4 Q.H.

(Prereq. Fifth-year standing; 71.268 or 71.250)

This course provides the student with practical information concerning the common infectious diseases and the antimicrobial agents used to treat them. In addition, specific dosing parameters, techniques, and aids will be discussed, permitting treatment assessment. Visual aids will be used to enhance student learning.

71.222 Pharmacy Technology 4 Q.H.
(Prereq. 71.141)

The industrial pharmacy development of new, oral, liquid pharmaceutical preparations, as well as emulsions, ointments, and aerosols.

71.243 Pharmaceutical Jurisprudence 4 Q.H.
(Prereq. Permission of instructor)

The course offers a comprehensive analysis and interpretation of laws relating to the practice of pharmacy. Federal and state food and drug laws, narcotics laws, Medicare and Medicaid regulations, and state pharmacy laws are discussed.

71.245 Pharmacy Administration I 4 Q.H.
(Prereq. Permission of instructor)

The course covers socioeconomic aspects of pharmacy: the government's relationship to the pharmaceutical industry, trends in contemporary practice, third-party payment plans, macroeconomic impact on the industry, and the interaction of current concepts in pharmacy.

71.254 Clinical Pharmacy 14 Q.H.
(Prereq. 71.250)

Students are assigned to a clinical site for five full days per week to observe patient response to medication and to evaluate and advise on all

factors which may modify efficacy, safety, and economy of therapy. Campus seminar involves student presentations on current therapeutic topic.

71.259 Basic Pharmacy (replaces 71.260) 3 Q.H.
The course provides an introduction to the general scope of pharmacy, including calculations, basic tools, and equipment used in the practice of pharmacy. The student is also introduced to various drug products, parapharmaceuticals, and medical terminology.

71.264 Biopharmaceutics/Pharmacokinetics 4 Q.H.
(Prereq. 71.141, 93.156, and 73.204)

Introduction to biopharmaceutics and pharmacokinetics. Emphasis is on the kinetics of drug absorption, distribution metabolism, and excretion in respect to dosage forms, drug interactions, and therapeutic response. Mathematical models for these processes are developed and applied to bioavailability data and the evaluation of drug therapy.

71.268 Clinical Pharmacotherapeutics 5 Q.H.
(Prereq. 73.265 and 73.245)

The course covers discussion of common clinical laboratory tests, major disease states and drug therapy for these conditions.

71.269 Pharmacokinetic Principles in Drug Therapy 4 Q.H.
(Prereq. 71.264)

The course covers the monitoring, development, and modification of drug dosage regimens, and the pharmacokinetic factors influencing the selection of these regimens, for the various therapeutic categories of drugs.

71.283 Professional Practice I 4 Q.H.
(Prereq. 71.264)

Continuation of discussion of disease states and therapy of concern to the pharmacist. Course includes calculation review and discussion of parapharmaceuticals.

71.284 Professional Practice I Laboratory 1 Q.H.*
(Prereq. 71.264)

Compounding and dispensing solid and liquid medication. Emphasis is placed on the correlation of Professional Practice I lecture material. Prescription practice also involves proprietary medications.

71.286 Professional Practice II Laboratory 1. Q.H.*
(Prereq. 71.283 concurrently)

Prescription practice is continued with emphasis on specialties and possible drug interactions.

71.288 Professional Practice II 4 Q.H.
(Prereq. 73.265)

The course is designed to provide an overall view of "over-the-counter" medications. The directions and precautions for proper use of these preparations are discussed.

71.290 Hospital Pharmacy I 4 Q.H.

(Prereq. Permission of Instructor)

This course examines the relationship of the pharmacy to the total hospital structure. Designing the physical plant, staffing, personnel management, and legal considerations of institutional practice.

71.291 Hospital Pharmacy II 4 Q.H.

(Prereq. 71.290)

An in-depth analysis of various concepts relating to hospital pharmacy. The course includes comprehensive treatment of topics by other health professionals at their respective institutions.

71.292 Seminar in Community Pharmacy Management 4 Q.H.

(Prereq. Permission of Instructor)

A discussion course on all phases of community pharmacy operations with extensive utilization of the case method of instruction.

71.293 Pharmaceutics Special Research Project(Prereq. Permission of instructor(s) and program director) **4 Q.H.***

A course of directed study or research in one of the pharmaceutical sciences, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.294 Pharmaceutics Special Research Project(Prereq. Permission of instructor(s) and program director) **4 Q.H.***

A course of directed study or research in pharmaceutics, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.295 Pharmaceutics Special Research Project(Prereq. Permission of instructor(s) and program director) **4 Q.H.***

A course of directed study or research in pharmaceutics, wherein the student may undertake in-depth investigation of an area of specialized interest.

71.296 Community Pharmacy Management 4 Q.H.

(Prereq. Permission of instructor)

The course focuses on the management requirements for establishing a community pharmacy. A comparative analysis of the prevailing types of organizations, locations, leases, and business organization, staffing, plant layout and design, and financial factors.

71.297 Principles of Management 4 Q.H.

(Prereq. Permission of instructor)

The course covers the fundamentals of business organization with emphasis on the qualitative and legal aspects of management. This course includes an analysis of the marketing structure of the drug trade, forces of organizations, personnel management, and decision-making theory using nonqualitative data.

71.298 Financial Management 4 Q.H.

(Prereq. Permission of Instructor)

The course examines the fundamentals of accounting and finance with emphasis on their application to retailing and community pharmacy management. Accounting systems, analysis of financial statements, budgets, cash flow, taxation, and finance are covered in depth.

71.299 Anti-Infectives - Structure and Action(Prereq. 12.145, 18.131, and 18.132) **5 Q.H.**

Course offers introduction to microbiology, microbial disease and the chemotherapeutic agents used in their treatment; clinical applications of important current antibiotics.

71.230 Drug Analysis 5 Q.H.*

The course offers a survey of the quantitative analytical techniques applicable to the evaluation and assay of natural and synthetic drugs and their formulations; emphasis on chromatographic, spectroscopic, and other instrumental methods, with selected laboratory experiments in the use of these as defined in official compendia.

71.253 Medicine Out of the Earth 4 Q.H.

(Prereq. 12.144, 12.145, 18.131, and 18.132)

This course focuses on the historical use of plants as drugs and their role in the development of modern medicinal and pharmaceutical preparations. Introduction to a variety of modern approaches to the discovery of new drugs is included, with reference to current research programs employing them. Films, slides, and demonstrations illustrate the techniques involved.

71.260 Basics of Nuclear Pharmacy 4 Q.H.

This course comprises the study of the physics, chemistry, and pharmaceutical use of radiopharmaceuticals. Methods for preparing and handling these drugs will be discussed in a practical way, as well as the rationale for their use in diagnosis and therapy.

71.261 Identification of Abuse Drugs 4 Q.H.

(Prereq. 12.171, 71.230, or equiv.)

The course provides an introduction to the chemistry, biological action, and methods of detection and assay of commonly abused drugs.

71.263 Medicinal Chemistry/Pharmacology I(Prereq. 18.132 and 12.145) **4 Q.H.**

Course offers an introduction to the principles of pharmacology, and medicinal chemistry applied to the discovery of drugs and their therapeutic utility in man; a detailed discussion of drugs affecting the central nervous system including therapeutic indications, adverse reactions and mechanisms of action.

71.293 Special Research Project (Medicinal Chemistry) 4 Q.H.*

(Prereq. Permission of instructor and program director)

Course offers directed study or research in one of the medicinal chemistry areas. Students may undertake in-depth investigation of an area of specialized interest.

72.294 Special Research Project (Medicinal Chemistry) 4 Q.H.*
(Prereq. Permission of Instructor and program director)

Course offers directed study or research in one of the medicinal chemistry areas. Students may undertake in-depth investigation of an area of specialized interest.

72.295 Special Research Project (Medicinal Chemistry) 4 Q.H.*
(Prereq. Permission of instructor and program director)

Course offers directed study or research in one of the medicinal chemistry areas. Students may undertake in-depth investigation of an area of specialized interest.

73.111 Drugs-Their Uses and Actions 4 Q.H.
Topics include background, classification, dose responses, untoward side effects, uses and commercial preparations of a broad series of drugs. (Not open to pharmacy, respiratory therapy, and nursing majors).

73.114 Basic Pharmacology 3 Q.H.
(Prereq. 12.107, 86.140, 86.136, 86.137, 86.138, 86.139, or consent of instructor)
Course is designed to present the classification, uses, and commercial preparation of a wide variety of drugs of social, therapeutic, and diagnostic significance. The course contents comprise an introduction to pharmacology and therapeutics.

73.116 Pharmacodynamics 3 Q.H.
(Prereq. 18.148, 18.125, 18.120, 12.106, and 12.107)

This course provides introductory expositions of pharmacologic principles, with the pharmacotherapeutics of drug groups and individual drug substances of particular importance in treatment and diagnosis of disease.

73.117 Pharmacology for the Respiratory Care Practitioner 4 Q.H.

The course provides an orientation to pharmacology, including the scope of pharmacology definitions; drug standards; drug legislation; and names, sources, active constituents; and pharmaceutical preparations of drugs relating to the respiratory-care practitioner.

73.118 Poisons 4 Q.H.
(Prereq. Non-Pharmacy majors)

This course presents an organized classification of chemicals (natural and synthetic) capable of potential harm to man and his environment. Included are the effects, uses, treatments, and designs of poisons.

73.130 Toxicology Orientation 1 Q.H.
An introduction to toxicology as it relates to clinical, environmental and regulatory concerns, the course includes research principles, clinical toxicology of drugs, water and air pollution concerns. An overview of the field for toxicology and science majors.

73.202 Anatomy-Physiology 5 Q.H.*
(Prereq. 12.119 and 18.132)

The course covers structure and function of cells, tissues and organs, including the muscular, immune and nervous systems. The laboratory includes human skeletal anatomy and cat dissection. Both the lecture and laboratory sections of this course are oriented to students in the health professions.

73.204 Anatomy-Physiology 5 Q.H.*
(Prereq. 73.202 or permission of instructor)

The course covers structure and function of the various life-supportive systems not covered in the first quarter; cardiovascular, endocrine, gastrointestinal, pulmonary systems. Laboratory is devoted to basic principles involved in understanding life systems and cell function.

73.215 Drug Interactions 4 Q.H.
(Prereq. 73.268)

The basic chemical-physical, pharmacodynamic, pharmacokinetic, physiological and pathological factors associated with drug interactions are studied. The roles of these factors in the efficacy and safety of therapeutic drug regimens involving major pharmacological classes of drugs are discussed.

73.229 Pharmacology Laboratory I 1 Q.H.*
(Prereq. 72.263)

Drug actions are observed in intact animals. The signs and symptoms are related to mechanisms of drug action and the integration of physiological systems. A major goal is the consolidation and integration of material previously presented in texts and didactic courses.

73.230 Pharmacology Laboratory II 1 Q.H.*
(Prereq. 73.229)

Basic principles of pharmacology and pharmacokinetics are observed using diverse experimental model systems. Drug action in these model systems demonstrates how pharmacological knowledge is obtained.

73.245 Introduction to Pathology 4 Q.H.
The course focuses on basic concepts of pathology for the pharmacy student, with emphasis on disease processes and alterations of normal biochemical mechanisms.

73.247 Toxicology 4 Q.H.
(Prereq. 72.263)

The course focuses on principles of toxicology, including FDA requirements relating to new drugs, environmental and other factors affecting

the toxicity of therapeutic agents, mechanisms of toxicity, and clinical applications.

73.248 Neuropharmacology 4 Q.H.
(Prereq. 73.264)

Current ideas and developments in neuropharmacology, the study of drugs that effect neural tissue, are presented in lectures and discussion sections. The cellular and biochemical bases of neural function are reviewed. Neurohumoral control of normal body function and the mechanisms through which drugs can alter these functions are emphasized. Critical evaluation of current research literature emphasizes the methodologies of the field.

73.249 Cardiovascular Pharmacology 4 Q.H.
(Prereq. 73.264)

The course exposes students to current ideas and developments in the area of cardiovascular drug research. Graduate level lectures emphasize the latest concepts in the etiology and pathophysiology of cardiovascular disorders, and relate these to proposed mechanisms of drug action and current therapeutic approaches. Informal discussion sessions emphasize pharmaceutical aspects relevant to lecture presentations as well as evaluations of current research literature.

73.253 Fundamental Principles of Systemic Toxicology 4 Q.H.
(Prereq. 72.263)

Course offers a presentation of the principles of toxicology with reference to mode of toxic damage at the cellular and systemic level. The course includes a discussion of the basic concepts used in evaluation of toxicity, and the basic mechanisms through which toxic drug interactions are induced.

73.254 Chemical and Analytical Toxicology 4 Q.H.
(Prereq. 72.263 and 73.253)

Course offers a presentation of the structure activity approach to toxicology of chemical classes of compounds. The methodology employed to evaluate the safety of chemicals is presented.

73.256 Toxicology Laboratory 1 Q.H.*
(Prereq. 73.253, 73.254, and a course in statistics)
Principles and experimental methods in toxicology are presented. Animal handling, biochemical techniques, and morphological demonstration of toxic injury are included.

73.264 Pharmacology/Medicinal Chemistry II 6 Q.H.
(Prereq. 72.263)

Continuation of 72.263. An interdisciplinary approach to the fundamental chemical and pharmacological principles of drug action. A discussion of structure-activity relationship, absorption characteristics, metabolic fate, pharmacodynamics, and therapeutic application of principally those drugs acting at sympathetic and neuroeffector junctional sites.

73.265 Pharmacology/Medicinal Chemistry III 6 Q.H.
(Prereq. 73.264)

A continuation of 73.264 with special emphasis on drugs affecting the hematopoietic systems, the kidneys, and the endocrine and reproductive systems.

73.293 Special Research Project (Pharmacology) 4 Q.H.*
(Prereq. Permission of instructor and program director)

This is a course of directed study or research in pharmacology/toxicology wherein the student may undertake in-depth investigation of an area of specialized interest.

73.294 Special Research Project (Pharmacology) 4 Q.H.*
(Prereq. Permission of instructor and program director)

This is a course of directed study or research in pharmacology/toxicology wherein the student may undertake in-depth investigation of an area of specialized interest.

73.295 Special Research Project (Pharmacology) 4 Q.H.*
(Prereq. Permission of instructor and program director)

This is a course of directed study or research in pharmacology/toxicology wherein the student may undertake in-depth investigation of an area of specialized interest.

Nursing

80.204 Nursing - Universal Needs 5 Q.H.
(Prereq. 80.217, 80.218, 80.219, 12.106, 12.107, 18.141, 18.142, and 18.148.)

This is the first nursing course with a clinical practicum. Selected universal needs of man serve as the basis for the course. The student is introduced to the nursing process and its application in health care settings. Knowledge and skills in communication, interviewing, group dynamics and professional role are further developed.

80.205 Nursing—Common Problems I 5 Q.H.
(Prereq. 80.204, 18.143, and 18.120)

This course focuses on common physiological and psychological disturbances that occur in individuals regardless of their medical diagnosis. Learning experiences are planned to allow the student to gain knowledge and skill in patient education, health team collaboration and selected nursing interventions. Additional opportunity is provided for the student to further develop nursing process and interpersonal relationships skills.

80.207 Common Problems II 7 Q.H.
(Prereq. 80.205, 18.144, 19.105, and 19.106)

Topics include physiological and psychological disturbances in illness with emphasis on the analysis of patient problems and the nurse's role in the control of infection, hypersensitivity and autoimmunity, pharmacology and drug therapy, responses of body stress, surgical intervention, alterations in nutrition, and teaching patients with long-term illness. Clinical laboratory practice and a weekly discussion-seminar group are required.

80.209 Transition 9 Q.H.
(Prereq. Completion of or concurrent courses: 12.106-107, 18.141-142, 18.143-144, 18.148, 19.141, 19.105-106, 18.120, and 73.116)

The first nursing course for Registered Nurse students in the Baccalaureate Degree Program introduces the purposes and objectives of this program and the philosophy of baccalaureate education; broadens students' perspectives of professional nursing; provides opportunities to complement and validate, through guided and independent study, students' knowledge of roles and role conflicts, the communication process, group dynamics and the nursing process, specifically with those patients experiencing the stresses of aging, chronic and long-term illness, and death. It also provides opportunities to understand human nutritional needs with specific emphasis on the aged and chronically ill individual.

80.211 Dynamics of Development in Health Promotion I 4 Q.H.

(Prereq. Open to students in Nurse Practitioner Program only)

This course provides an intensive period of instruction during which the student is immersed in theory and practice essential to the comprehensive knowledge of the subject. It forms the theoretical foundation upon which the majority of the program courses are built. It details child and adolescent development according to three growth cycles: (1) the initial period of growth from conception through toddlerhood; (2) the second period of growth from the pre-school years through the early school years; and (3) the third period from pre-adolescence through adolescence. Within each growth period, those systems which are most critical to normal development are studied.

The emotional and behavioral component of the course is taught parallel with the physical, with stress on the interrelationship among the emotional, social, intellectual, moral and biologic components. The comprehensive study of each growth cycle is intended to establish a firm understanding of the continuum of individual human progress to maturity. This perspective of continuity of human development of the whole individual forms the basis upon

which criteria for health care delivery are planned.

80.212 Dynamics of Development in Health Promotion II 4 Q.H.

(Prereq. 80.211; Open to students in Nurse Practitioner Program only)

This course continues the study of human development throughout the life cycle with focus on the biological, emotional and social development of man during his adult years. Critical phases of development during early adulthood, the middle years, and aging are examined.

This course also addresses social, cultural and religious influences on development. Participants are given the opportunity to expand their previous concepts of family dynamics in examining family interactions which take place during these life stages.

The central objective of this course is to broaden the students' theoretical foundation for practice and to provide a conceptual framework for family centered health care.

80.213 Preventive Health Care I 3 Q.H.

(Prereq. Open to students in Nurse Practitioner Program only)

This course begins the study of preventive health care by providing the opportunity for participants to apply knowledge of human development, family dynamics, physical assessment, and interviewing and counseling to the care of well children. Emphasis is placed on developing guidelines for the clinical management of well child care. Participants study the integration of health maintenance, screening, and anticipatory guidance into a total plan of a well child visit. Seminars allow participants the opportunity to apply theoretical concepts to real and simulated situations.

80.214 Preventive Health Care II 3 Q.H.

(Prereq. Open to students in Nurse Practitioner Program only)

This course continues the study of preventive health care as part of primary care delivery for individuals and families with emphasis on identification and appropriate intervention in a variety of situations that constitute a significant risk to the optimal development and adaptation of individuals from infancy through adult life. Concepts of epidemiology and community health are used in examining factors influencing the level of wellness in individuals and families. Participants explore the role of the nurse practitioner as primary care provider through weekly seminar discussions, an in-depth study of a major health risk, and application of learned material in their clinical practice.

80.215 Medical History and Physical Diagnosis 5 Q.H.

(Prereq. Open to students in Nurse Practitioner Program only)

Physical Diagnosis applies concurrently learned theory of human development to history taking and physical examination of well children and adults. The course focuses on the theoretical background and skills necessary to take and record a complete health history, and to perform and record a complete physical examination on children and adults according to the guidelines of the problem-oriented medical record.

A combination of lectures, discussions, and faculty supervised clinical practice sessions are utilized. The student is provided with a medical practitioner and a nurse practitioner team model which emphasizes the collaborative interaction of the nurse practitioner and the physician.

A total of 8 hours clinical experience is required each week. Four – six hours per week of direct teaching and supervision during the first quarter by the physician preceptor in the student's own work setting are required to provide the clinical practice necessary for application of theory and development of skills. Special clinical teaching experiences with the clinical nurse preceptor will be arranged. In addition, individual clinical experiences will be arranged as the need arises.

80.216 Interviewing, Counseling and Family Dynamics **2 Q.H.**
(Prereq. Open to students in Nurse Practitioner Program only)

This course is designed to examine fundamental theory regarding individual and family dynamics with a major focus on interpersonal behavioral patterns. An integral part of the course is the presentation of techniques and approaches to interviewing and counseling in order to enhance the increased development of effective interviewing skills in providing anticipatory guidance and counseling to children, young adults and families. The course meets two hours per week and includes theoretical content in the form of didactic lectures, audio visual presentations, and small group seminars to facilitate theoretical application to the clinical setting.

80.217 Nursing **4 Q.H.**
The first course in nursing introduces the student to modern concepts of health, communications, interviewing techniques, group dynamics, and problem-solving processes.

80.218 Nursing **4 Q.H.**
The course offers introductory study of the health care delivery system, role of professional nursing, regional/world health problems, and ethical/legal aspects of nursing. The student serves as group discussion leader at least once during the quarter.

80.219 Human Nutrition **4 Q.H.**
(Prereq. Open to College of Nursing Students only)
The science of nutrition assists the student in recognizing factors influencing the formation of

food habits in self and others: identifying physiological functions of the major essential nutrients, food sources of these nutrients and normal nutrient needs according to age groups; exploring alternative sources of protein; investigating malnutrition and its possible causes; exploring consumer problems and concerns such as food additives, fast foods, food fads, food budgeting, and how to recognize and combat nutrition misinformation; and recognizing the need for objectivity in working with individuals in meeting their nutritional needs as well as the importance of nutrition and its relationship to health.

81.201 Medical-Surgical Nursing **9 Q.H.**
(Prereq. 80.207 or 80.209; 73.116)

The course focuses on conceptual approaches to selected physiological problems encountered in the care of adult patients. Guided clinical experiences are planned, with special emphasis on the effects of illness on the individual's pattern of living, continuity of care, and health teaching. Multidimensional participatory learning experiences are provided throughout the course. Classroom and clinical experiences focus on the knowledge and skills necessary to plan and implement comprehensive health care.

82.201 Maternal and Child Nursing **9 Q.H.**
(Prereq. 80.207 or 80.209; 73.116 and 19.141; validation of health clearance for TB and Rubella screening mandatory prior to registration for course)

The course focuses on use of nursing process and related theory as applied to childbearing and childrearing families. Students are required to participate in field experiences in selected maternity and pediatric health care settings. The course emphasizes the role of the nurse as a health teacher and explores current problems relating to maternal and child welfare and their implications for nursing.

Because of the nature of these settings, some evening hours and some weekend hours are required. Students are responsible for their own transportation.

83.201 Psychiatric-Mental Health Nursing **9 Q.H.**
(Prereq. 80.207 or 80.209; 73.116)

This course is designed to help students develop knowledge of mental illness, understanding of the dynamics of human behavior, and skill in working with individuals and groups of patients in the prevention of mental illness and promotion of mental health.

84.201 Community Health Nursing **9 Q.H.**
(Prereq. 81.201, 82.201, 19.142 and 20.100)

This course provides an opportunity for students to increase their understanding of the variety of ways in which families and communities organize to meet the health and welfare needs of their members. Particular attention is given to the role of the nurse in planning with individuals,

families, and community agencies to meet recognized needs. Themes occurring throughout the course include political implications of health care delivery and current research that affects family health and community nursing. Value clarification and cultural experience of nurse and client is also explored. Laboratory experience involves work with individuals, families, and communities.

85.201 Contemporary Nursing
(Prereq. 84.201)

9 Q.H.

This final nursing course before graduation includes lectures, seminars, progress reports, and student-selected placement experience. Course varies to reflect current trends and issues in nursing and health care delivery. Students have the opportunity to demonstrate self-direction by defining their objectives for placement experience, pursuing an area of nursing in which they are particularly interested, utilizing basic principles of research, and evaluating their own performance.

Health Professions

General Courses

86.102 Hospital Law

2 Q.H.

This course offers an analysis of the legal principles relating to medical and paramedical practice within a hospital environment. The common law and statutory rights of the hospital, practitioner, and patient are discussed.

86.103 Basic Medical Terminology

2 Q.H.

This course provides a study of the language of medicine and health care. Emphasis is on disease, procedures, and symptomatic terms and their definitions, word construction, analysis, and application. The student is provided an opportunity to acquire working knowledge of medical terminology.

86.107 Medical Terminology

4 Q.H.

The course offers a study of the language of medicine, including prefixes, suffixes, roots, abbreviations, and disease, operative, and drug terms. Also included are terms related to all area specialties. The terms are studied as they relate to a specific system of the body.

86.112 Foundations of Medical Science I

3 Q.H.

The course covers major disease problems in our society and modes of treatment. Included are discussion of organized care, diagnosis and treatment; consideration of reproduction, birth, and pediatrics.

86.113 Foundations of Medical Science II

3 Q.H.
(Prereq. 86.112)

A continuation of 86.112, covering heart, cancer, stroke, blood and lymphatic diseases, accidents, and musculoskeletal, respiratory, and gastrointestinal diseases.

86.160 Introduction to Data Processing for the Health Services

4 Q.H.

This is an introductory course designed to introduce the student to the basic concepts of electronic data processing. Topics considered include input, output, storage, computation, and controls. The basic history of automation is reviewed and the concept of computer language is introduced utilizing FORTRAN. Simple problems are completed on an individual and group basis.

87.135 Professional Dynamics in the Health Care Delivery System

4 Q.H.

Course offers a survey of the roles, responsibilities, academic training, and competencies of practitioners within the College of Pharmacy and Allied Health Professions, as well as others. Discussion of manpower status and projections for the major health professions is included. Introduction to the humanistic dimensions of health care education and practice and orientation to professional organizations and professionalism are included.

Medical Laboratory Science

The Medical Laboratory professional courses are taught by University faculty, together with supportive clinical faculty.

87.100 Laboratory Medicine—Orientation

1 Q.H.

The course focuses on the history and development of the medical laboratory technologies and pathology.

87.101 Basic Medical Laboratory Science

(Prereq. 18.132, 12.104, or 12.107)

4 Q.H.*

Introductory course in the basic medical laboratory sciences; methods, principles, and theories of urinalysis and basic hematology.

87.102 Basic Medical Laboratory Hematology

2 Q.H.

Principles and procedures and basic medical laboratory hematology, including basic hemostasis, are covered.

87.103 Basic Medical Laboratory Immunohematology

2 Q.H.*

(Prereq. 87.132).

Basic principles in immunohematology and

* Lab fee required.

lated techniques, with particular emphasis on those procedures used in blood banking, are covered.

7.104 Basic Medical Laboratory Science Clinical Microbiology 4 Q.H.*
(Prereq. 18.132)

Basic principles and techniques of organism isolation, cultivation, and identification from clinical specimens are covered. Elementary serologic procedures will be discussed.

7.105 Basic Medical Laboratory Chemistry and Instrumentation 4 Q.H.*
(Prereq. 12.171 and 87.101)

Principles, procedures, and techniques of basic clinical chemistry and instrumentation.

7.106 Basic Electronics and Medical Laboratory Science Instrumentation I 1 Q.H.

(Prereq. 87.155, 11.171 or concurrently)
The course covers electricity, electronics, and electronic components with application to medical laboratory instruments.

7.109 Foundations of Clinical Laboratory Science 4 Q.H.
(Prereq. Admission to physician assistant program)

Basic laboratory methods employed in primary care, including urinalysis, gram staining, hematocrit, hemoglobin, sedimentation rate, white cell count, and differential.

7.113 Basic MLS Clinical Immunology 3 Q.H.
Topics include basic principles of immunology with laboratory emphasis on immunodiagnostic techniques currently used in clinical laboratory practice.

7.114 Medical Mycology 2 Q.H.
Laboratory identification of clinically significant fungi with a discussion of modes and types of infections.

7.135 Professional Dynamics in the Health Care Delivery System 4 Q.H.
The course offers a survey of the roles, responsibilities, academic training, and competencies of practitioners within the College of Pharmacy and Allied Health Professions, as well as others. Discussion of manpower status and projections for the major health professions is included. Introduction to the humanistic dimensions of health care education and practice and orientation to professional organizations and professionalism are included.

7.141 MLT Applied Study in Clinical Microbiology 2 Q.H.
(Prereq. 87.100, 87.150, 87.151, 87.152, 87.153, 87.154, 87.155, and admission to AD-MLT Clinical Program)

Clinical practicum in microbiology at a Northeastern University affiliated hospital providing AD-MLT-level instruction.

7.142 MLT Applied Study in Hematology 2 Q.H.

Lab fee required.

(Prereq. 87.100, 87.150, 87.151, 87.152, 87.153, 87.154, 87.155, and admission to AD-MLT Clinical Program)

Clinical practicum in hematology and coagulation at a Northeastern University affiliated hospital providing AD-MLT-level instruction.

87.143 MLT Applied Study in Blood Banking (Prereq. 87.100, 87.150, 87.151, 87.152, 87.153, 87.154, 87.155, and admission to AD-MLT Clinical Program.) 2 Q.H.

Clinical practicum in blood banking at a Northeastern University affiliated hospital providing AD-MLT-level instruction.

87.145 MLT Applied Study in Clinical Chemistry (Prereq. 87.100, 87.150, 87.151, 87.152, 87.153, 87.154, 87.155, and admission to AD-MLT Clinical Program) 2 Q.H.

Clinical practicum in clinical chemistry and urinalysis at a Northeastern University affiliated hospital providing AD-MLT-level instruction.

87.150 Basic Medical Laboratory Science I (Prereq. 18.132 and 12.104, or 12.119) 3 Q.H.*
Introductory course in basic medical laboratory science covers principles and theories of renal physiology, with laboratory emphasis on techniques for chemical and microscopic detection of normal and abnormal constituents.

87.151 Basic MLS Hematology 3 Q.H.
(Prereq. 18.132 and 12.104 or 12.119)
This introductory course in basic hematology procedures and principles covers hemoglobin, hematocrit, white and red blood cell counts, and white cell differentiation.

87.152 Basic MLS Hematology II 3 Q.H.
(Prereq. 87.151 or 87.101)

The course covers principles and procedures of hematology, with emphasis on hematologic cell maturation and morphology and basic hemostasis.

87.153 Basic MLS Immunochemistry 3 Q.H.*
(Prereq. 18.132)

The course covers basic principles in immunochemistry, with specific application to the A, B, O, and Rh blood group systems, antibody detection, and crossmatch design. Basic blood bank techniques to include blood typing and crossmatching.

87.154 Basic MLS Clinical Microbiology 6 Q.H.*
(Prereq. 12.104 or 12.119, and 18.132)

The course focuses on basic principles and techniques of organism isolation, cultivation, and identification from clinical specimens. Elementary serologic procedures are discussed.

87.155 Basic MLS Clinical Chemistry and Instrumentation 5 Q.H.*
(Prereq. 87.150 or 87.101)

The course covers principles of clinical chemistry with application to procedures and

techniques. Laboratory emphasis on instrumental analysis of specific clinical chemical specimens.

87.162 Hematology—Applied Study 3 Q.H.

(Prereq. Acceptance to MT clinical program)

Clinical practicum in applied hematology at an affiliated, accredited hospital medical technology program.

87.163 Immunohematology Applied Study

(Prereq. Acceptance to MT clinical program) **2 Q.H.**

Clinical practicum in applied immunohematology at an affiliated, accredited hospital medical technology program.

87.164 Clinical Microbiology Applied Study

(Prereq. Acceptance to MT clinical program) **5 Q.H.**

Clinical practicum in applied microbiology at an affiliated, accredited hospital medical technology program.

87.165 Clinical Chemistry Applied Study 5 Q.H.
(Formerly 87.115)

(Prereq. Acceptance to MT clinical program)

Clinical practicum in applied clinical chemistry at an affiliated, accredited hospital medical technology program.

87.180 MLT Seminar I 2 Q.H.

(Prereq. 87.100, 87.150, 87.151, 87.152, 87.153, 87.154, 87.155, and admission to AD-MLT Clinical Program)

The course offers a basic introduction to correlation of laboratory findings in hematology, blood banking, microbiology and clinical chemistry, with appropriate referrals of laboratory information in working situation. Basic use of quality control.

87.181 MLT Seminar II 2 Q.H.
(Prereq. 87.180)

Continuation of 87.180 and introduction to selected new laboratory techniques. Emphasis is on the role of the AD-MLT technician in a working laboratory.

87.190 Undergraduate Research 2 Q.H.
(Prereq. Special permission)

The course examines special problems in laboratory medicine involving individual research under the direction of a faculty member.

87.204 Medical Parasitology 2 Q.H.
(Prereq. 87.154, 18.220, and 18.221)

The course focuses on laboratory identification of parasites of human significance. Life cycles related to mode of infestation, effect on man, and diagnostic form.

87.211 Hemostasis 2 Q.H.
Lecture/laboratory course in advanced hemostatic techniques. Theory and methodology will

be stressed, along with interpretation of laboratory results.

87.213 Immunohematology 2 Q.H.*
(Prereq. 87.103 and 87.153)

This course offers advanced studies in antigen-antibody detection and problem solving through immunohematological tests. Discussion of related hematologic disorders and the medical/legal aspects of blood banking is included.

87.221 Medical Laboratory Management 2 Q.H.
(Prereq. Completion of clinical program)

The course offers a survey of factors which relate to effective laboratory administration: hospital organizational structure, principles of management and supervision, cost accounting, purchasing, inspection guidelines, legal responsibilities, and personnel relations.

87.222 Histochemistry 2 Q.H.*
(Prereq. 87.252)

The histochemistry of hemic cells and techniques used in diagnosis of hematological disorders are covered.

87.224 Advanced Microbiology II 2 Q.H.
(Prereq. 87.154 or permission of instructor)

Topics include host and microbial interactions in disease produced by viral, rickettsial, chlamydial, mycoplasma, mycobacteria and actinomyces, with discussion of disease states and laboratory diagnostic procedures.

87.225 Advanced Clinical Chemistry II 2 Q.H.
(Prereq. 87.155 or permission of instructor)

Course includes current methodologies and instrumentation used in clinical chemistry to evaluate hormonal conditions and drug level monitoring.

87.226 Medical Laboratory Science Education 2 Q.H.
(Prereq. Completion of clinical program)

The course offers a survey of current topics in medical laboratory science education: developing objectives, methods of evaluation and certification, clinical instruction and evaluation, medical laboratory science curricula, and use of media and other methods of instruction.

87.232 Hematology II 3 Q.H.
(Prereq. 87.152 or permission of instructor)

Topics include physiology of blood cells and bone marrow with a review of physiology of blood hemopoiesis; discussions of hematologic results as they relate to normal, anemic, and leukemic conditions.

87.234 Advanced Microbiology III 2 Q.H.
(Prereq. 87.154 or permission of instructor)

Course covers host and microbial interactions in gastrointestinal, genitourinary and respiratory tract infections; discussion of disease states and laboratory diagnostic procedures.

87.235 Advanced Clinical Chemistry III 2 Q.H.
(Prereq. 87.155 or permission of instructor)
Course includes metabolism of and procedures of nucleic acids, amino acids, proteins, lipids and carbohydrates.

87.242 Hematology IV - Hemostasis 3 Q.H.
Course offers advanced studies in hemostasis with emphasis on factor identification and problem solving of hemostatic problems.

87.244 Advanced Microbiology IV 2 Q.H.
(Prereq. 87.154 or permission of instructor)
Topics include host and microbial interactions in closed-space infections and in disease produced by staphylococci and anaerobic organisms. Methods for antibiotic susceptibility testing and principles of infectious disease control are also included.

87.245 Clinical Chemistry IV 2 Q.H.
(Prereq. 87.155 or permission of instructor)
Course includes a discussion of laboratory procedures used to evaluate acid-base balance, hepatic, renal and gastrointestinal systems as well as vitamin and trace metal blood levels.

Health Record Administration

88.151 Health Record Science I 4 Q.H.
(Prereq. Two years of arts and sciences)
The course offers introduction to health records; history of the medical record and medical record forms. Included are a study of professional medical record administrators and their relationship to the health facility, medical staff and committees in the hospital, quantitative analysis of medical records.

88.152 Health Record Science II 4 Q.H.
(Prereq. 88.151)
This course covers the numbering, filing, security, and preservation of medical records; principles of law related to patient care and medical records; emphasis on the rules of privileged communications and the release of information to agencies.

88.153 Health Record Science II 4 Q.H.
(Prereq. 88.152)
The course examines basic principles of compiling statistics for hospital and other health institutions. Topics include the preparation of the daily census and discharge analysis; monthly, annual and special reports; birth and death certificates; principles of standardized nomenclature of diseases and operations and ICD-9-CM; and study of other indexes used in medical records departments.

88.154 Advanced Health Record/Science IV 4 Q.H.
(Prereq. 88.153)
This course covers advanced aspects of health/medical record science. Special focus is

87.250 Communications in the Health Sciences 4 Q.H.
(Prereq. 87.152, 87.153, 87.154, and 87.155)
The course examines communications in the medical scientific community including journal articles, resource material, abstracts, and health-related interpersonal communications.

87.253 Immunohematology 2 Q.H.
(Prereq. 87.153)
This course offers blood group systems, antibody identification, and advanced immunohematologic principles and procedures. Case studies will be presented.

87.280 MLS Special Topics 2 Q.H.
(Prereq. 87.150 through 87.155)
The course offers a comprehensive examination of one or more current topics in the clinical laboratory.

87.281 MLS Senior Seminar 2 Q.H.
(Prereq. Completion of all clinical courses)
The course provides an integration of all aspects of the clinical laboratory based primarily on case studies presented and reviewed by students. A comprehensive examination is part of the course.

on the management of record systems in ambulatory, long-term, home care, and psychiatric settings.

88.157 Seminar in Health Records 2 Q.H.
(Prereq. Senior status)
Case study and discussion are used to integrate the discrete skills and knowledge of the professional curriculum into a meaningful whole by analysis of real and hypothetical problems. Coordination between the seminar and applied medical record science is emphasized.

88.158 Orientation to Medical Records I 1 Q.H.
This introductory seminar focuses on the issues, activities, and opportunities in the medical record profession.

88.159 Orientation to Medical Records II 1 Q.H.
Continuation of seminar that introduces the medical record profession. Focuses on the tools utilized by the medical record professional.

88.161 Quality Assurance 4 Q.H.
(Prereq. 88.153-154, 86.107 or permission of instructor)

This course is designed to provide the student with the opportunity to gain knowledge of the issues and problems involved in designing, implementing, and maintaining quality assurance programs for health-care facilities. An opportunity will also be provided for the student to gain the technical skills necessary to carry out all aspects of the audit process, emphasizing the professional's role as facilitator to physicians and other professional staff.

86.162 Management Principles in Health Care**4 Q.H.**

This course is an introduction to basic management principles. It is designed so that the hospital (or health-care facility) can provide the major source of example and case study, giving students an opportunity to synthesize abstract principles with practical application.

86.163 Concepts and Application of Work Design (Prereq. 86.162)**4 Q.H.**

This course is designed as an introduction to systems analysis, its concepts, and techniques. Specific application to health record management is stressed throughout the course.

86.164 Special Topics I**2 Q.H.**

The course provides specialized study in medical records.

86.165 Special Topics II**2 Q.H.**

The course provides specialized study in medical records.

86.166 Applied Health Statistics**4 Q.H.**

(Prereq. Basic statistics course)

Designed to provide the health record student with the opportunity to learn to apply basic statistical techniques to the gathering, analysis, and interpretation of health care and medical record data, as well as the effective use of these tools in such areas as departmental management and research studies. Agencies involved in collecting statistical data will be reviewed, with the types and sources of information they require; the relationship of statistics epidemiology and medical records will also be considered.

86.167 The Health Record Professional:**Issues and Problems****2 Q.H.**

(Prereq. Senior status)

This course provides the senior health record student with information on a range of topics which are germane to his professional role but which may not have been included in other professional courses.

86.168 Medical Computer Applications (Prereq. EDP Course I)**4 Q.H.**

The course covers utilization of electronic data processing in health care. Overview of current activities and their impact on future trends in health record management information will be discussed. The role of the RRA as an information specialist will be considered.

86.169 Independent Study**4 Q.H.**

(Prereq. See Instructor)

This independent study project is designed to give students an opportunity to explore in depth a subject relevant to their interests. It is designed to give them the opportunity to study a problem, present a proposal, carry out a study or a course of action, and prepare both written and oral presentations of their activities.

86.173 Clinical Seminar**2 Q.H.**

Designed to integrate the didactic and the clinical experience at an early stage, the course provides a formal means by which students can share clinical developments with each other. It is designed to give them an opportunity to improve their competency in specific areas of medical record practice.

86.257 Organization and Management of Medical Records Department I**4 Q.H.**

The course focuses on the study of the hospital, in particular, patterns of organization within hospitals: lines of responsibility and authority, medical staff and administrative organization, hospital departmental functions and organization. Included are the study of fundamental principles and successful practices in getting office work accomplished. Topics cover office management problems and their solution; conceptual framework for the operation of essential management function; facilities, solutions, and contributions of the office.

86.258 Organization and Management of Medical Records Department II**4 Q.H.**

The course focuses on the study of the development of an efficient medical records department in any medical care facility; application of the principles of organization and management in the development and administration of a system of medical information handling.

86.260 Applied Health Records Directed Practice I**3 Q.H.**

(Prereq. 86.151)

Clinical practicum in medical record science in the general hospital.

86.261 Applied Health Records Directed Practice II**1 Q.H.**

(Prereq. 86.260)

Clinical practicum in medical records science in specialized health settings.

86.264 Applied Health Records Science III**4 Q.H.**

Clinical practicum in health/medical records management in the health-care facility.

86.265 Organization and Management of Medical Record Department I**4 Q.H.**

This course focuses on the medical record department within the health care setting. Lines of responsibility and authority, medical staff and administrative organization, hospital departmental functions and organization are examined, as are fundamental principles and successful practices of office organization. An opportunity is provided for the student to develop the technical skills necessary to develop organization charts, policies, job descriptions and job procedures.

86.266 Organization and Management of Medical Record Department II**4 Q.H.**

(Prereq. 86.265)

This course focuses on the medical record

department within the health care setting. Budget and cost control mechanisms, organized labor and collective bargaining, office environment and layout, and the impact of state and federal regulations on medical record practices are examined. An opportunity is provided for the student to develop the technical skills necessary to plan and analyze budgets, to plan and design office layouts, and to evaluate the impact of regulations on particular medical record applications.

86.267 Organization and Management of Medical Record Department III 4 Q.H.
(Prereq. 86.266)

Respiratory Therapy

86.201 Professional Practice Laboratory I 1 Q.H.
(Prereq. 86.221 concurrently)

This lab is designed to provide practice in basic care skills through laboratory exercises and simulation of patient-care situations.

86.202 Professional Practice Laboratory II 1 Q.H.*
(Prereq. 86.201, 86.222 concurrently)

The lab is designed to provide students hands-on experience in working with respiratory therapy equipment. Simulated patient-management problems will be set up in the lab to provide problem-solving experience.

86.203 Professional Practice Laboratory III 1 Q.H.*
(Prereq. 86.202, 86.233 concurrently)

The lab is designed to provide students hands-on experience in working with respiratory therapy equipment. Simulated patient-management problems will be set up in the lab to provide problem-solving experience.

86.204 Professional Practice Laboratory IV 1 Q.H.*
(Prereq. 86.203, 86.234 concurrently)

The lab is designed to provide students hands-on experience in working with respiratory therapy equipment. Simulated respiratory-care problems will be set up in the lab to provide problem-solving experience.

86.205 Cardiopulmonary Laboratory Practice 1 Q.H.*
(Prereq. 86.225 concurrently)

This course is designed as the laboratory portion of Cardiopulmonary Laboratory Technology. Focus is placed on the techniques of pulmonary functions testing, blood gas analysis, and cardiovascular testing commonly done in the clinical setting.

86.211 Respiratory Therapy Seminar I 1 Q.H.
This is a survey course designed to introduce the beginning respiratory therapy student to the role of respiratory therapists in health-care delivery.

This course focuses on the medical record Department within the health care setting. Orientation programs, training programs, in-service education, interviewing, hiring, counseling, motivating and disciplining employees, and communication skills are examined. An opportunity is provided for the student to develop an orientation and training program, an in-service presentation. Role-playing sessions and case studies are used to develop skill in interviewing, hiring, counseling, disciplining and motivating employees. Emphasis is placed on verbal skills.

86.212 Respiratory Therapy Seminar II 1 Q.H.

This is a survey course designed to introduce the beginning respiratory therapy student to the profession.

86.213 Respiratory Therapy Seminar III 1 Q.H.

This is a survey course designed to introduce the beginning respiratory therapy student to the role of respiratory therapists in health-care delivery.

86.214 Clinical Seminar I 1 Q.H.

(Prereq. 86.228 concurrently)
The seminar is designed to discuss clinical topics and respiratory-care problems encountered during clinical practice in the hospitals.

86.215 Clinical Seminar II 1 Q.H.

(Prereq. 86.229 concurrently)
The seminar is designed to discuss clinical topics and respiratory-care problems encountered during clinical practice in the hospitals.

86.216 Advanced Respiratory Therapy Seminar I 1 Q.H.

(Prereq. 86.271 concurrently)
This course is designed to complement the course entitled Advanced Life Support Systems. Discussion of current clinical problems and research related to life support systems will emphasize problems encountered in the hospital.

86.217 Advanced Clinical Seminar II 1 Q.H.

(Prereq. 86.272 concurrently)
This course is designed to complement the course entitled Advanced Life Support Systems. Discussion of current clinical problems and research related to life-support systems will emphasize problems encountered in the hospital.

86.218 Advanced Clinical Seminar III 1 Q.H.

(Prereq. 86.279 concurrently)

Course is designed to complement the course entitled Practicum in Critical Care. Discussion of current clinical problems and research related to critical-care problems are emphasized.

86.219 Advanced Clinical Seminar IV 1 Q.H.

(Prereq. 86.280 concurrently)

Course is designed to complement the course entitled Practicum in Critical Care. Discussion of current research related to critical-care problems is emphasized.

86.221 Introduction to Patient Care 2 Q.H.

(Prereq. Satisfactory completion of the first year curriculum)

This course is designed to provide an opportunity for the student to gain knowledge and understanding of basic patient-care skills, including moving and positioning of patients, infection control, basic observation and assessment skills, and familiarity with the techniques of cardiopulmonary resuscitation. An opportunity will also be provided for the development of the student's interpersonal and communication skills.

86.222 Introduction to Respiratory Care 3 Q.H.

(Prereq. 86.221 and pharmacology concurrently)

This course is basic to all other professional respiratory therapy courses. Focus is on the theory and application of medical gas administration and humidity/aerosol therapy.

86.233 Respiratory Care for the Medical and Surgical Patient 4 Q.H.

(Prereq. 86.222)

This course is a continuation of the introduction to respiratory therapy. It is designed as the didactic portion of beginning clinical experience on noncritical patients. Focus is placed on respiratory-care problems following major surgery and those problems related to medical patients.

86.234 Respiratory Care for the Critical Patient 4 Q.H.

(Prereq. 86.233)

The course is the last in a sequence of three directly related to the theory of respiratory therapy procedures. It is designed as the didactic portion of clinical experience on critical patients. Focus is placed on respiratory-care problems encountered with patients in intensive care units.

86.225 Cardiopulmonary Laboratory Techniques 3 Q.H.

(Prereq. 86.227 and permission of instructor)

This course is designed to provide the student with an opportunity to gain knowledge and background in the principles, theory, and

procedures encountered in a clinical cardiopulmonary laboratory. Focus will be placed on the physiologic foundations of cardiopulmonary testing.

86.226 Cardiopulmonary Physiology 4 Q.H.

(Prereq. Satisfactory completion of the first-year courses)

The course is designed to provide a detailed introduction to the structure and function of the cardiopulmonary systems. The material presented will emphasize clinical relevance and application in preparation for the basic courses in the clinical sciences.

86.227 Cardiopulmonary Disease 4 Q.H.

(Prereq. 86.226)

This course is designed to provide a detailed introduction to the clinical diagnostic procedures employed in evaluating cardiopulmonary patients and description of the etiology, pathophysiology, diagnosis, and treatment of major cardiopulmonary diseases.

86.228 Clinical Practice I 6 Q.H.

(Prereq. 86.222 completed and 86.233 concurrently)

This is the first course designed to provide clinical experience in hospitals. Focus is on respiratory care for noncritical patients. Emphasis is placed on infection control, medical gas administration, humidification of medical gases, aerosol therapy, chest physiotherapy, deep breathing treatments, and the administration of aerosol medications.

86.229 Clinical Practice II 6 Q.H.

(Prereq. 86.233 completed and 86.234 concurrently)

The course is designed to provide clinical experience in hospitals. Emphasis is placed on respiratory care for critical patients. Advanced respiratory care topics such as airway care, mechanical ventilation, and positive and expiratory pressure are reviewed.

86.271 Advanced Life Support Systems I 4 Q.H.

(Prereq. 86.234, 86.225)

Designed to provide an in-depth coverage of selected techniques of advanced life support applied to the critically ill patient.

86.272 Advanced Life Support Systems II 4 Q.H.

(Prereq. 86.271)

Continuation of Advanced Life Support Systems I.

86.274 Advanced Clinical Physiology 4 Q.H.

(Prereq. 73.204 and permission)

This lecture course is designed to enrich the respiratory therapy students' program by providing them with an opportunity for an in-depth exposure to medical physiology, based on the concept of the homeostatic state and its application to the clinical setting.

86.276 Respiratory Care for the Neonatal Patient 4 Q.H.

(Prereq. 86.272, 86.274)

The course is designed to provide the student with an understanding of the methods and techniques of respiratory therapy for neonatal patients. Emphasis is placed on mechanical ventilation, newborn care, and the respiratory distress syndrome.

86.277 Directed Independent Study I 2 Q.H.

(Prereq. 86.287 concurrently)

This is a course of directed study in a student's major wherein in-depth investigation of a special interest area is undertaken.

86.278 Advanced Medical Monitoring 4 Q.H.

(Prereq. 86.272, 86.274)

The lecture course is designed to enrich the respiratory therapy students' program by providing them with an opportunity for an in-depth exposure to the theory and application of physiologic monitoring systems and their use in critical-care setting.

86.281 Introduction to Perinatal/Pediatric Respiratory Care 2 Q.H.

(Prereq. 86.224)

This course is designed to provide the student with the opportunity to acquire knowledge and understanding of human cardiopulmonary development from the time of conception through childhood years. Normal as well as abnormal manifestations of pregnancy, labor, and the process of delivering are also emphasized. Methods and techniques of assessment and delivery of respiratory care will relate to the pediatric patient's pathophysiology of cardiopulmonary disease.

86.287 Practicum in Critical Care 4 Q.H.

(Prereq. 86.272, 86.274, 86.276 concurrently)

The course is designed to allow the student to select an area of emphasis from among the following: 1) intensive care units; 2) neonatal-pediatrics; 3) emergency care; 4) extracorporeal membrane oxygenation. During the practicum courses students are provided with an opportunity to work in their emphasis areas, i.e., neonatal/pediatric students may study at Children's Hospital Medical Center.

86.288 Practicum in Critical Care 4 Q.H.

(Prereq. 86.287)

This is a continuation of 86.287.

Cooperative Education

90.113 Career Development for Criminal Justice 4 Q.H.

(Prereq. Upperclass criminal justice majors only)

Activity-oriented seminars emphasize career planning and job-search techniques. Participants are expected to research professional level jobs in the criminal justice field, examine lifestyles, prepare or revise their résumé, develop interviewing skills, and set personal, educational, and career goals.

90.114 Life/Career Planning 4 Q.H.

(Prereq. Juniors and seniors only)

Highly participatory classes, open to juniors and seniors in any of the Basic Colleges, focus on career exploration, self-assessment, job-search techniques, and networking. Students are required to prepare a professional resume, participate in videotaped mock interviews, research careers, and investigate graduate and professional schools.

90.130 Career Advisement for Criminal Justice I 1 Q.H.

(Prereq. Criminal justice freshmen only)

The first in a three-course sequence, taught by the students' freshman adviser, assists students in adjusting to college life, developing college survival skills, and becoming familiar with the broad range of careers in the field of criminal justice. Classes are augmented with individual meetings with the instructor/adviser.

90.131 Career Advisement for Criminal Justice II 1 Q.H.

(Prereq. 90.130 or permission of freshman adviser)

Students are introduced to cooperative education and its implications for career planning. Work and personal values, interests, skills, and lifestyles are examined in terms of their relationship to career options within the field of criminal justice.

90.132 Career Advisement for Criminal Justice III 1 Q.H.

(Prereq. 90.131)

The final course in the three-course sequence is devoted to the preparation of a personal résumé, an introduction to interviewing techniques, and the setting of short-term educational and vocational goals. Students are required to research criminal justice jobs using the career literature and a computer-assisted career exploration system.

90.251 Placement Techniques 1 Q.H.

Career selection and development are discussed concurrently with résumé preparation, interviewing techniques, and effective written communication to facilitate the planning and implementation of a professional career program.

90.253 Professional Development for Teachers 1 Q.H.

The course offers an examination of the following topics: analysis of the job market for teachers; role of the Education Placement Office; alternative careers for education graduates; graduate study; and certification procedures. A

discussion of résumé preparation and interviewing techniques is also included.

90.256 Career Management in Physical Therapy 1 Q.H.

Career management in physical therapy is examined in view of professional development and career opportunities; other discussions include résumé preparation, communications, and the interview process.

90.260 Nursing Career Management 4 Q.H.

The course provides the opportunity to explore traditional and nontraditional nursing careers and education, the world of work, personal and

work values, lifestyle, and career management techniques including skills identification, résumé writing, sources of career information, evaluating an employer, assertiveness, and selected current issues relevant to nursing careers.

90.265 Professional Development for Civil Engineers 4 Q.H.

The course is designed to foster self-assessment skills and to enhance personal and professional growth, as well as to provide a forum for civil engineering students to exchange views on current professional issues and topics.

Military Science

91.101 U.S. Defense Establishment 1 Q.H.

This course focuses on history, organization, and mission of the Department of Defense. The mission and organization of the United States Army is studied with emphasis on career opportunities, future education, and individual service obligations.

91.104 American Military History 2 Q.H.

This course covers the development of the United States Army from the time of the American Revolution to the present. Topics include selected battles and campaigns, coupled with major periods of international crises; the modernization of the American military and the conduct of war.

91.112 Military Leadership 1.5 Q.H.

The course offers an examination of the dynamics and principles of leadership. The leader's role, duties, and leader-subordinate relationships are stressed. Case studies depicting typical leadership problems will be analyzed.

91.113 Small Unit Tactics 1.5 Q.H.

The course introduces the fundamentals of offensive and defensive combat at the squad and platoon level. Troop-leading procedures, planning, and combat orders are also stressed.

91.114 Fundamentals and Theories of Military Teams 1.5 Q.H.

(Prereq. 91.113)

Combined arms tactics at the company level are discussed. The organization of the unit and responsibilities of the key officers are examined in detail. Practical exercises are used to simulate actual situations, with students filling leadership roles.

91.116 Military Law and Administration 1.5 Q.H.

The course covers a review of the history of military law; the military judicial system, including courts-martial and alternatives to courts-martial; and international law governing land warfare (Geneva Conventions), focusing on legal problems encountered by, and authority applicable to, the junior leader. Course also includes a discussion of additional legal duties

commonly assigned to a junior leader.

91.120 Methods of Instruction 1.5 Q.H.

The course provides an introduction to the fundamentals of teaching and principles of learning. Emphasizing practical applications, the course will cover multimedia instructional techniques, lesson planning, and training management.

91.124 World Balance 1.5 Q.H.

This course offers a study of American military institutions, policies, experiences, and traditions in peace and war. Emphasis is on the relationship between the military and other aspects of American society and the role of the military in the development of the nation. Majority of the course focuses on events of the twentieth century to include an in-depth analysis of the organization of U.S. defense forces vis-à-vis national security considerations.

91.126 Advanced Leadership Clinic 2 Q.H.*

(Prereq. 91.112, 91.113, and 91.114)

This course is a blend of classroom, practical exercise, and field training designed to help cadets prepare for attendance at advanced camp. Review and instruction in map reading/orienteering, drill and ceremonies, weapons familiarization, and first aid. Practical exercises in leadership are built around physical training, swimming, and task-oriented situations. Field training is accomplished during one weekend at Fort Devens, with an emphasis on achieving minimum requirements in training and physical fitness.

91.127 Officer Development Seminar 1.5 Q.H.

(Prereq. Senior cadets only)

This course is designed for senior cadets. Techniques concerning the communicative process and management of resources at the company level are examined. Personal affairs, with an emphasis on financial management, benefits and estate planning, are discussed. Selected branches of the Army are surveyed. Additional duties of junior officers, the promotion

*Lab fee required.

system, personnel management system, and schooling and career opportunities are studied.

91.130 Land Navigation/Map Reading 1 Q.H.
The course covers use of map and compass as land navigation aids; grid coordinates, intersection, resection, and terrain association; introduction to orienteering.

91.131 Orienteering 1 Q.H.
(Prereq. 91.130)

The course focuses on orienteering as a sport; types of orienteering, meet administration, course layout. Emphasis on orienteering techniques with student participation in several orienteering meets.

91.132 Leadership I 1 Q.H.

The course covers mission, organization, and composition of the basic infantry rifle squad; principles of offensive and defensive combat stressing combat functions, movement techniques, fire power, and planning considerations; introduction to troopleading procedures and patrolling.

91.133 Leadership II 1 Q.H.
(Prereq. 91.132)

The course covers theory, methods, and principles for understanding human behavior in organizations; effects of motivation on individual and group performance; introduction to management and leadership techniques. Practical application through study of case analyses.

91.134 Rappelling 1 Q.H.

The course provides instruction in the basic skills and techniques of rappelling. The course will cover the equipment, its proper use, and the basic rappelling techniques to include seat-hip, body, and hasty rappelling. Emphasis will be placed on proper knot tying and safety measures to be observed during mountain operating.

91.135 Marksmanship 1 Q.H.

The course offers instruction in basic marksmanship techniques, safety, and range commands. The course will cover regulations governing competition firing, with emphasis on the development of skills through practice.

91.136 Leadership III 1 Q.H.

The course covers fundamentals of drill and ceremonies, military formations, and the performance of basic marching movements, with and without weapons; voice development and correct inflection for giving commands. Also provided is opportunity for participation in civic ceremonies as part of a marching unit or honor guard. Objectives are to instill teamwork, confidence, pride, alertness, attention to detail, *esprit de corps*, and discipline.

91.137 Leadership IV 1 Q.H.
(Prereq. 91.136)

Trick drill and ceremonies requiring accuracy and timing of marching movements. Techniques

of precision drill, including spins and throws, are emphasized. Drill will be performed using weapons with bayonets. Opportunity for participation in competition drill meets.

91.138 Leadership V 1 Q.H.

The course provides instruction through an individual learning center environment in the techniques and application of first aid measures.

91.140 Advanced Leadership Laboratory 6 Q.H.

(Prereq. Basic course and 91.126)

External leadership laboratory conducted at Fort Bragg, North Carolina. Course prerequisites are mandatory without exception. Intensive 6-week schedule includes the practical application of leadership principles in multiple positions at varying levels of responsibility. The students will face a variety of stressful, demanding situations which will force them to draw upon both physical and mental reserves. Successfully meeting these challenges indicates the poise and self-assurance necessary for effective leadership. Supplemental instruction includes physical conditioning, counseling, senior-subordinate relations, tactical doctrine, international laws of land warfare, and approaches to problem solving. Course attended by students from 123 colleges and universities from Maine to Florida. All expenses are borne by the United States Government, including a stipend of approximately \$500.

91.201 Air Force Today 1 Q.H.

The course examines the role of the Air Force in the contemporary world by studying the total force structure, strategic offensive and defensive forces, general-purpose forces, and aerospace support forces.

91.202 Leadership Laboratory 1 Q.H.

The course provides introduction to the customs, traditions, and courtesies of the Air Force through seminars, guest speakers, and a field trip to an Air Force base.

91.203 Air Force Today 1 Q.H.

(Prereq. 91.201)

Continuation of 91.201. The course examines the role of the Air Force in the contemporary world by studying the total force structure, strategic offensive and defensive forces, general-purpose forces, and aerospace-support forces.

91.204 Leadership Laboratory 1 Q.H.

(Prereq. 91.202)

Continues 91.202 with emphasis on the role and responsibilities of an Air Force junior officer.

91.205 The Development of Air Power 1 Q.H.

The course includes the development of air power from balloons and dirigibles through the peaceful employment of United States air power in relief missions and civic action programs in the late 1960s, and in the air war in Vietnam.

91.206 Leadership Laboratory 1 Q.H.

(Prereq. 91.204)

The course emphasizes the development of techniques used to direct and inform. Students are assigned leadership and management positions in the 91.202 programs described above.

91.207 The Development of Air Power 1 Q.H.

(Prereq. 91.205)

Continuation of 91.205. The course includes the development of air power from balloons and dirigibles through the peaceful employment of United States air power in relief missions and civic action programs in the late 1960s, and in the air war in Vietnam.

91.208 Leadership Laboratory 1 Q.H.

(Prereq. 91.206)

Continues 91.206. Adds a special program in preparation for Field Training.

91.209 National Security Forces in Contemporary American Society 4 Q.H.

This course is composed of academic study and a leadership laboratory. The academic portion of the course includes an examination of military professionalism and existing patterns of civil-military relations, an analysis of the international and domestic environments affecting the United States defense policy, an examination of the post-World War II development of defense strategy and the methods of managing conflict, and an extensive study of the manifold variables involved in the formulation and implementation of national security policy. Within this structure, continued attention is given to developing the communicative skills required of junior officers.

91.210 Leadership Laboratory 1 Q.H.

(Prereq. 91.208)

This course offers supervisory practice and exercise of leadership functions in controlling and directing activities of the cadet corps. Development of leadership potential in a practical, supervised training laboratory, which typically includes field trips to Air Force installations.

91.211 National Security Forces in Contemporary American Society 4 Q.H.

(Prereq. 91.209)

This course is composed of academic study and a leadership laboratory. The academic portion of the course includes an examination of military professionalism and existing patterns of civil-military relations, an analysis of the international and domestic environments affecting United States defense policy, an examination of the post-World War II development of defense strategy and the methods of managing conflict, and an extensive study of the manifold variables

involved in the formulation and implementation of national security policy. Within this structure, continued attention is given to developing the communicative skills required of junior officers.

91.212 Leadership Laboratory 1 Q.H.

(Prereq. 91.210)

Continues the emphasis in 91.210 on supervisory and leadership skills. Provides staff-training experience through a class project requiring a written report.

91.213 Air Force Management and Leadership 4 Q.H.

The course offers a study of management from the point of view of the Air Force junior officer, including the subjects of military leadership and military law. Attention is devoted to the progressive development of the communicative skills needed by junior officers.

91.214 Leadership Laboratory 1 Q.H.

(Prereq. 91.212)

The course provides exercise of management functions in planning, supervising, and directing cadet corps activities to acquire proficiency in military leadership skills.

91.215 Air Force Management and Leadership 4 Q.H.

(Prereq. 91.213)

Continues 91.213. Provides general theory and practice of management with special reference to Air Force application. Introduction to information systems, quantitative approaches to decision making, and resource-control techniques.

91.216 Leadership Laboratory 1 Q.H.

(Prereq. 91.214)

Continues 91.214. Includes preparation for professional duties.

91.218 Leadership Laboratory 1 Q.H.

Drill and ceremony seminars on current Air Force activities.

91.220 Leadership Laboratory 1 Q.H.

The course offers practice in leadership position. Evaluation, analysis, and problem solving are included.

91.222 Leadership Laboratory 1 Q.H.

The course focuses on group problem solving. Staff-training experience through a class project requiring a written report.

91.224 Leadership Laboratory 1 Q.H.

The course offers advanced leadership experiences, including staff studies.

91.226 Leadership Laboratory 1 Q.H.

Continues orientation for Air Force officer duties. Study of officer specialties and career patterns is included.

Criminal Justice

92.104 Administration of Criminal Justice 4 Q.H.

This course surveys the contemporary criminal justice system from the initial contact with the offender through prosecution, disposition, incarceration, and release to the community. Emphasis is placed on major systems of social control: police, corrections, juvenile justice, mental health systems, and their policies and practices relative to the offender. A balance is maintained in providing legal, empirical, and sociological materials.

92.107 Human Factors in Policing 4 Q.H. (Prereq. 92.115)

This course focuses on the theory and practice of human relations and conflict management necessary for effective policing. It is recommended for those with a career interest in policing.

92.108 Survey of Correctional Systems 4 Q.H. (Prereq. 92.137)

The course offers an introduction to penology and corrections, exploring the public reaction to convicted offenders historically, while concentrating on issues and programs of contemporary corrections.

92.110 Police-Community Relations 4 Q.H. (Prereq. 92.131, 92.115, and junior or senior status)

The course covers police-public contact; uses of the communications media in projecting the police image; responsibilities of police in dealing effectively with minority groups, civil rights, civil disorder, and public protection. An exploration of the role and function of the police in intergroup relations is also included.

92.115 Police Operations 4 Q.H. (Prereq. 92.131)

The course offers a general survey of police operational procedures, including patrol, traffic, interrogations, and report writing. Role playing is used extensively to demonstrate interviewing methods.

92.128 Introduction to Private Security 4 Q.H.

The course examines the organization and administration of security and loss prevention programs in industry, business, and government. Emphasis is placed on the protection of assets, personnel, and facilities, and focuses on the relationships between security organizations and governmental agencies.

92.129 Criminal Justice Planning 4 Q.H. (Prereq. 91.157, a statistics course, and middler, junior or senior status)

The course examines criminal justice planning theory and methods. Emphasis is on the need for criminal justice planning and the tools used in the planning process. Students in small groups are expected to prepare a sample criminal justice plan during the term.

92.130 Criminalistics I: Criminal Investigation 4 Q.H.

The course focuses on criminal investigation dealing with areas of investigation, case preparation, and applied physiology.

92.131 Law Enforcement Administration and Management 4 Q.H.

The course covers the principles of police organization, administration, and management, including staff and line functions, chain of command, span of control, selection of personnel, and promotional systems. Consideration is also given to special problems such as strikes, natural and atomic disasters, narcotic traffic, and vice control.

92.134 Constitutional Problems 4 Q.H. (Prereq. 92.141)

This is a required course focusing on an historical evaluation of the Fourteenth Amendment and its use in making rights prescribed under the Bill of Rights applicable to the individual states. Also detailed in the course are the inherent problems of the Fifth and Sixth Amendments, including the effect of their implications on such matters as police practices, illegal search and seizure, and right to counsel. Students are expected to be familiar with basic concepts as well as changing interpretations so that they can cite cases which may stand as precedents for conclusions they draw.

92.137 Criminology 4 Q.H.

The course covers patterns and evolution of criminal behavior, the social forces involved, and development of the individual criminal; administration of criminal justice: law, courts, police, prisons.

92.139 Theories in Penology 4 Q.H. (Prereq. 21.100 and 92.137)

The course offers a philosophical approach to the development of punishment in the United States, as examined in an historical context. Issues of justice and morality are considered as they are manifested in contemporary penal eighteenth-, nineteenth-, and twentieth-century eighteenth-, nineteenth-, and twentieth-century novelists, philosophers, and criminologists.

92.140 Criminalistics III: Arson and Fire Investigation 4 Q.H.

A course in the examination and behavior of fire. Deals with fire-related phenomena such as convection, radiation, contact, and ignition and includes consideration of arson, explosions, asphyxiation, and combustibility. The course will also cover fireproofing agents such as plastics, textiles, building materials, and the chemistry of the halogens. Finally, some time is given to areas of fire experimentation and the potential for more sophisticated inquiry.

92.141 Criminal Law 4 Q.H.

The course deals with the area of criminal responsibility, some of its limitations, and certain modifications substantially affecting it. The course requires an ability to express in writing both the knowledge of a particular concept and the ability to identify it in a complex fact pattern and discuss its implications and ramifications.

92.142. Survey of Criminal Evidence 4 Q.H.
(Prereq. 92.141, 92.134)

This survey course focuses upon the fundamentals of criminal trial procedure and the rules of evidence as they apply to the trial of a criminal case. Students are required to read and brief criminal court cases.

92.143 Criminalistics II: Forensic Laboratory 4 Q.H.*
(Prereq. 92.130 and permission of instructor)

The course provides a survey of the elements of microscopy, spectroscopy, and basic chemistry as they apply to the study of firearms, hair, fibers, blood, paint, tools, glass, documents, laundry marks, poisons, and other materials which comprise physical evidence.

92.147 The Administration of Juvenile Justice 4 Q.H.
(Prereq. 21.100, 92.137)

Course work examines the juvenile court, its philosophy, procedure, and personnel. Focus is on the discretionary processes by which juveniles are labeled delinquent, dependent, and neglected. The roles played by police, prosecution, defense, bench, and social service workers are considered. Field visits are arranged.

92.148 Probation and Parole 4 Q.H.
(Prereq. 92.108)

The course examines the nature and problems of correctional field service, both adult and juvenile.

92.149 Alternatives to Incarceration 4 Q.H.
(Prereq. 92.131; middlers, juniors and seniors)

This course examines the concept of criminal and juvenile justice in terms of the alternatives to and the consequences of incarceration in total institutions such as jails, prisons, and secure detention homes. It examines current alternatives in light of the history, philosophy, and reality of institutionalization and the theories of punishment.

92.155 Seminar in Law Enforcement 4 Q.H.
(Prereq. 92.131, 92.115 and junior or senior status)

The course provides an opportunity for free discussion about the numerous problems facing the law enforcement officer. Periodic oral and written reports are required. Guest lecturers are invited to participate in and lead discussion sessions. An effort is made to have students

formulate their own philosophy of law enforcement prior to graduation.

92.156 Seminar in Law and Criminal Justice 4 Q.H.
(Prereq. 92.141, 92.134, and junior or senior status)

Specific topic to be announced.

92.157 Research Methods in Criminal Justice 4 Q.H.
(Prereq. A statistics course and middler, junior, or senior status)

The course focuses on development of research design of the kind most useful to criminal justice problems; understanding some of the most important issues and problems facing researchers in the field; use of various data collection methods including observation, interviewing, questionnaire construction, and scales for survey analysis; validity and reliability; computer application in criminal justice.

92.167 Correctional Institutions 4 Q.H.
(Prereq. 92.108)

The course offers an analysis of the organization and administration of correctional institutions.

92.168 Crime and Social Defense 4 Q.H.
(Prereq. 92.104, 21.100, or equiv.)

The course examines the problems of crime and its control from a comparative perspective. Countries such as the Soviet Union, China, France, East and West Germany, Great Britain, Holland, Finland, and Sweden are analyzed in terms of incidence and type of deviance and crime, as well as in terms of their approach to social control and the prevention of crime. Points of divergence between these countries and the United States will be examined, with regard to their perceived causes of crime and their differing approaches to rehabilitation and crime prevention.

92.170 Women and the Criminal Justice System 4 Q.H.
(Prereq. Middlers, juniors, and seniors only)

This course is intended to introduce students to issues relating to roles taken by women involved with the criminal justice system and to the system's various responses to women in these roles. Specific focus will be directed toward women as victims of crime, as offenders, and as practitioners.

92.181 Police Discretion 4 Q.H.
(Prereq. Middlers, juniors and seniors only)

This course examines the nature and impact of discretion as it relates to police decision making. Attention is given to various forms of police discretion and ways in which it can be structured, confined, and checked. Students have the opportunity to examine and learn to analyze sample police departmental policies and study different formal and informal methods of developing policies. Students also study the

relationship of discretion to controlling police behavior and police corruption.

92.191, 92.192, 92.193, 92.194 Directed Study
(each) **4 Q.H.**

92.209 The Female Offender **4 Q.H.**
(Prereq. 21.100 and 92.137)

The course addresses itself to the female at various stages in the criminal justice system, from commission of a crime to parole. Both the juvenile and adult offender are studied. The thrust of the course is a critical analysis of existing theory and research on the female offender, with emphasis on the socialization, roles, and social participation of society at large. The male offender is also considered at each level for purposes of comparison.

92.210 Topics In History of Criminal Justice
4 Q.H.

The course provides an historic survey of the principles of criminal justice in the ancient and medieval periods, with emphasis upon the impact of religion and philosophy.

92.211 Topics In History of Criminal Justice
4 Q.H.

A continuation of the historic survey with an examination of the effect of the Renaissance, the Reformation, and the rise of nation states.

92.215 Stigmas and Justice **4 Q.H.**
(Prereq. Middler, junior or senior status)

Student introspection and articulation of ideas are encouraged and expected in this course which examines the history, theory, and reality of social and legal problems faced by those who

are stigmatized. The effect of stigmatization, and the possibility of reintegration of offenders, ex-offenders, mental patients, ex-mental patients, men and women "on the street," addicts, alcoholics, the physically ill or disfigured, dishonorably discharged veterans, etc., are analyzed in the course. The major focus is directed toward an examination of the manner in which the criminal justice system stigmatizes its clientele and how, in turn, some people who are stigmatized by society are much more prone to being clients of criminal justice.

92.216 Evidence I **4 Q.H.**
(Prereq. 92.141, 92.134)

The goal of this course is to provide students the opportunity to develop their understanding of the manner in which legal issues and disputes are resolved by trial. Study will focus on the manner in which the trial system works and the reasoning behind the rules governing its operation, including rules of evidence: the mechanics of the adversary system, relevancy, reliability, and rules of exclusion based upon policy considerations other than relevancy and reliability. Learning tools will include videotapes, mock trials, observation of actual court trials, lectures, take-home assignments, and exams.

92.217 Evidence II **4 Q.H.**
(Prereq. 92.216)

This course continues with reliability and rules of exclusion, based upon policy considerations other than relevancy and reliability as set forth in Part I.

Interdisciplinary Courses

93.110 FORTRAN Programming **4 Q.H.**
(Prereq. One year college math)

The course focuses on techniques for programming problems on any large computer. Emphasis is on general programming methods using the language of FORTRAN. A large number of example problems are presented in an effort to display the applicability of computers to a wide variety of professional activities. No prior computer experience is required.

93.111 Advanced FORTRAN Programming **4 Q.H.**
(Prereq. 93.110)

Higher-level aspects of the FORTRAN language are considered. Topics covered include the use of software packages, the manipulation of large data arrays, processing of nonnumeric information, magnetic tape operations, and data-file management. An introduction to systems analysis is presented, with emphasis on Monte Carlo and queuing simulation techniques.

93.120 An Analysis of American Racism **4 Q.H.**
This seminar in contemporary aspects of racism

in America discusses the cycle by which racism in our institutions helps form our attitudes and the manner in which our attitudes, in turn, shape our institutions. Emphasis is on the practical, day-to-day aspects of racism, rather than the theoretical and historical.

93.125 COBOL Programming I **4 Q.H.**

This course covers fundamentals of computer programming in COBOL. Topics include elementary computer functioning, program organization, input/output operations, arithmetic and data-handling verbs, and program logic development through the use of flow charts. Storage and manipulation of large data files on magnetic tape are introduced. No prior computer experience is required.

93.126 COBOL Programming II **4 Q.H.**
(Prereq. 93.125)

Higher-level aspects of the COBOL language are considered. Included are use of decision tables in developing program logic; improving program efficiency; error detection and minimization techniques; bulk data storage in magnetic tape

and disc files; storing, merging, updating, sorting, and purging data files; generating reports.

93.130 Professional Practices: Individual and Social Dimensions 4 Q.H.

The course explores the dimensions and dilemmas of freedom and responsibility confronting professional people practicing within limits set by socio-economic conditions, by clients, and by other professionals. Case histories are examined to illustrate the dilemmas professionals face, the choices which are typically made, and the consequences these have on the freedom of the practitioner and on personal and professional integrity.

93.131 Introduction to Women Studies: Image, Myth, and Reality 4 Q.H.

This introductory course in the study of women in society encompasses the historical, political, economic, and social processes which have created both the image and the reality of women in contemporary society. An overview of the many different disciplinary approaches to the study of women.

93.158 Biochemistry 4 Q.H.
(Prereq. 12.144, 12.145)

This introductory course in biochemistry deals with the structures, functions, and metabolism of amino acids, proteins, carbohydrates, lipids, and nucleic acids. Mechanisms of enzyme reactions, enzyme kinetics, vitamins, biological oxidation reduction reactions, and bioenergetics are discussed as well as various inborn errors of metabolism.

93.160 American Musical Theatre 4 Q.H.
(Fall and Winter)

This is an interdisciplinary course, offered by the Departments of Drama and Music, in the development of the American musical as entertainment and serious art form, through an examination of script, score, dance, and design. Works by Bernstein, Rodgers and Hammerstein, the Gershwins, Weill, Lerner and Loewe, and Cole Porter are examined.

93.162 Design and the Urban Environment 4 Q.H.
The course offers an introduction to the study of the urban environment, with special emphasis on its visual, social, psychological, and technical implications. Lectures, design projects and field work include study of the Northeastern campus as well as Boston neighborhoods. Limited enrollment.

93.171 Introduction to Science I 4 Q.H.

93.171 and 93.172 form a two-quarter sequence for nonscience majors, providing an interdisciplinary treatment of basic concepts of the natural sciences, such as energy, gravity, and the atom. The course will also examine the ways in which atoms combine to form the substances that comprise matter.

93.172 Introduction to Science II 4 Q.H.
(Prereq. 93.171)

This course applies principles previously learned in 93.171 to selected topics in biology, chemistry, physics, and geology. The subjects actually covered depend on the interests of the instructor, and, to some extent, on those of the students.

93.175 Individual in Society 4 Q.H.

This team-taught course, jointly offered by the Departments of Philosophy and Religion, Drama and Speech, and Sociology, explores the dimensions and dilemmas of freedom and responsibility. The ways in which the self emerges and adapts itself in socially oriented communication processes (including verbal and nonverbal symbolic language) are discussed, especially as these relations exercise constraints on enlightened choice for both individuals and institutions.

93.176 Communication and Quality of Life 4 Q.H.

This course offers students an opportunity to develop a meaning for the concept "quality of life" and to gain knowledge of subjective and objective methods for measuring and assessing "quality of life." Problems in professions that influence "quality of life" are then identified, explored, analyzed, and possible solutions evaluated.

93.180 Physical Biochemistry 4 Q.H.
(Prereq. 18.136 or 93.151)

This course examines physiochemical principles as they apply to biological processes. Topics to be covered include chemical equilibria, reaction kinetics, basic thermodynamics, oxidation-reduction reactions, bioenergetics, macromolecules in solution, and transport. The approach is quantitative, and problem solving as a tool for learning is emphasized. Basic assumptions and limitations underlying principles are explained; however, for the most part, rigorous derivations are avoided. Applications to basic experimental techniques in biochemistry are made by way of relevant biochemical examples.

93.185 Molecular Biology 4 Q.H.
(Prereq. 18.136 or 93.151)

The course emphasizes experimental design and proof in macromolecular chemistry and genetics. Studies current theories of the detailed molecular mechanisms for the preservation, expression, and evolutionary development of biological information. Applications to general biological and health problems will be emphasized. A two-hour period each week will be devoted to problem solving, research "game playing," and model building.

93.190 Advanced Biochemistry Laboratory 4 Q.H.
(Prereq. 18.136 or 93.151)

This course offers an intense laboratory experience for advanced undergraduate and graduate

students. Experiments will emphasize protein and nucleic acid chemistry.

93.204 Health Professions: Past, Present, and Future

4 Q.H.

This course focuses on social history of the modern health professions. The course explores long-range patterns in the organization and regulation of the health professions, beginning with the Middle Ages and emphasizing the Jacksonian period, industrialization, modern professional organizations, the growing role of the state, responses of the health professions, and the future of health care in the United States under various corporate-government schemes for reorganization and "accountability."

93.230 Field Experience in Human Services I

4 Q.H.

Human services students are required to fulfill two fieldwork placements during the last two years of their program. Placement consists of 150 hours on site and generally varies according to the student's interest. Examples of placement sites include community centers, nursing homes, vocational workshops, state and federal agencies for children, and recreational facilities. Experiences are supervised by University staff to maximize the students' learning opportunities.

93.231 Field Experience in Human Services II

(Prereq. 93.230 and senior status)

4 Q.H.

Continuation of 93.230.

93.232 Senior Seminar in Human Services

4 Q.H.

This course is designed for seniors in human services. The course examines emerging role and career options within the human services field. Study focuses on self-examination of attitudes and values affecting delivery of services; exploration of ethical issues and dilemmas relevant to human services, grantsmanship and funding issues; staff supervision and development within human services agencies; and refinement of group leadership skills.

93.XXX, YYY, ZZZ Interdisciplinary Honors

Seminars

(each) 4 Q.H.

One seminar is scheduled for each of fall, winter, and spring terms. Course numbers and content

vary from year to year, since seminars are selected competitively from among faculty applications to the Honors Committee. Seminars to be offered are announced in late May for the following school year. A list of seminars offered for the current year is available from the Honors Program Office. Freshmen, sophomores and middlers who qualify for the Honors Program may enroll. Juniors and seniors are not eligible.

93.249 Honors Seminar: Survey of the Social Sciences

4 Q.H.

This course is designed to provide an introduction to important ideas and scholarship in the social sciences for honors students who have completed the freshman year. A two-week period will be devoted to each of the following disciplines: economics, sociology/anthropology, political science, history, and psychology. Topics covered will vary from year to year depending on the team of faculty who teach the course. Offered in the winter term.

93.250 Honors Seminar: Survey of the Natural Sciences

4 Q.H.

This course is designed to provide an introduction to important ideas and scholarship in the natural sciences for honors students who have completed the freshman year. A two-week period will be devoted to each of the following disciplines: chemistry, biology, earth science, mathematics, and physics. Topics covered will vary from year to year depending on the team of faculty who teach the course. Offered in the spring term.

93.251 Honors Seminar: Survey of the Humanities

4 Q.H.

This course is designed to provide an introduction to important ideas and scholarship in the humanities for honors students who have completed the freshman year. A two-week period will be devoted to each of the following disciplines: art, music, drama, literature, and philosophy. Topics covered will vary from year to year depending on the team of faculty who teach the course. Offered in the fall term.

Alternative Freshman-Year Program

The following courses will be offered in the Alternative Freshman-Year Program during the 1981-1982 academic year.

10.100 Mathematical Preliminaries I

4 Q.H.

A review of precollege mathematics, primarily arithmetic. Topics covered include operations with numbers, fractions, decimals, percents, and graphs (pictographs, bar graphs, circle graphs, etc.), together with applications of these skills and concepts. The sequel of this course is 10.110.

10.110 Mathematical Preliminaries II

4 Q.H.

A survey of precollege algebra, including signed numbers, exponents, multiplication of polynomials, factoring, linear equations, graphing, and radicals. The course is intended for students whose background in precollege algebra is weak.

10.118 College Mathematics for Business 4 Q.H.

Topics include sets, rectangular coordinates and graphs, functions and functional notation, linear and quadratic functions, exponential and logarithmic functions, systems of linear equations; summations, inequalities, permutations and combinations, elementary probability concepts, arithmetic and geometric progressions, simple and compound interest, annuities.

21.401 Principles of Sociology I 4 Q.H.

An introduction to basic concepts and theories relating to the study of humans as participants in group life. Socialization, culture, social structure, primary groups, family, social stratification, and population are emphasized.

21.402 Principles of Sociology II 4 Q.H.

(Prereq. 21.401)

A continuation of Principles of Sociology I with emphasis on critical analysis of American society with particular attention to problems of social, political, urban, and industrial change.

22.401 Introduction to Political Science I 4 Q.H.

A study of the basic political concepts and forces of organization from the classical Greeks to the modern nation-state. The Soviet Union and the United Kingdom are contrasted as contemporary illustrations of the institutional distinction between a totalitarian and a constitutional system.

22.402 Introduction to Political Science II 4 Q.H.

Consideration of the development of operational liberty in the United States and its constitutional underpinnings and an analysis of the national American political process and the conduct of recent American foreign relations.

23.309 History of Civilization A 4 Q.H.

The major ideas and institutions of civilization from ancient times to 1648.

23.310 History of Civilization B 4 Q.H.

(Prereq. 23.309)

A continuation of 23.309, covering the period since 1648.

30.400 Fundamentals of English I 4 Q.H.

An intensive introduction to the principles of effective expository writing; emphasis on description, paragraph construction, and organization; review of the conventions of English usage, punctuation, and syntax; essay assignments.

30.402 Fundamentals of English II 4 Q.H.

Intensive instruction in exposition, argument, and academic essay writing; instruction in the writing of a research paper; continued emphasis on the conventions of English usage, punctuation and syntax; essay assignments.

39.601 Economics I 4 Q.H.

Topics include development of macroeconomic analysis; review of national income concepts; national income determination, fluctuation, and growth; role of the banking system and the Federal Reserve System; government expenditures and taxation; international trade; and balance of international payments.

49.499 Intensive Management and Organization 4 Q.H.

The course offers an introduction to the setting and general structure of American business, the characteristics of private enterprise, and the nature and challenge of capitalism and other forms of economic enterprise. The forms of business, the structure of organization, and the functions of management are discussed in the context of their influence on the various forms of business. Through lecture and class discussion the new business person is given an overview of the methodologies used in planning, organizing, directing, and controlling the functions of production, marketing, sales, pricing, and finance.

51.531 Integrated Language Skills Development I 2 Q.H.

This course strives to improve a student's reading comprehension and related study and language skills. The course devotes time, discussion, and considerable practice to meaning skills such as basic reading comprehension and interpretation, including work in critical reading and other interpretational acts (inferences, understanding imagery, and symbolic usage). Study skills, previewing, finding main ideas and details, outlining and summarizing, and classification are also covered. There is continuous interaction and integration of all the communications skills: reading, writing, listening, and speaking.

51.532 Integrated Language skills Development II 2 Q.H.

(Prereq. 51.531)

A continuation of 51.531.

Academic Calendar 1981-1982

September 1981

7	Monday	LABOR DAY. University closed.
8-11	Tuesday-Friday	Final examinations for Basic Colleges.
14-25	Monday-Friday	Division A vacation.
17	Thursday	FALL COMMENCEMENT.
28	Monday	Beginning of 1981-1982 academic year. Upperclass registration for Divisions A and C. Boston and Burlington Campus freshmen complete their registration. No Basic Colleges classes today.

October 1981

12	Monday	COLUMBUS DAY. University closed.
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November 1981

11	Wednesday	VETERANS DAY. University closed.
26-29	Thursday-Sunday	THANKSGIVING DAY recess.

December 1981

14-18	Monday-Friday	Final examinations for Basic Colleges.
21-Jan. 3, 1982	Monday-Sunday	CHRISTMAS vacation.

January 1982

1	Friday	NEW YEAR'S DAY. University closed. Freshman and
4	Monday	Upperclass registration Divisions B and C. No Basic Colleges classes today.
15	Friday	MARTIN LUTHER KING, JR.'S BIRTHDAY. University closed.

February 1982

15	Monday	WASHINGTON'S BIRTHDAY. University closed.
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March 1982

22-26	Monday-Friday	Final examinations for Basic Colleges.
29-Apr. 3	Monday-Saturday	Vacation period for all students in all colleges and schools. (Division B vacation.)

April 1982

5	Monday	Registration for Division A and C students and Division B seniors. Registration for freshmen (Quarter Three) at Boston Campus, Burlington Campus, and January freshmen (Quarter Two). Beginning of Spring Quarter. Beginning of Division A work period. No Basic Colleges classes today.
19	Monday	PATRIOTS' DAY. University closed.

225/Academic Calendar

May 1982

31	Monday	MEMORIAL DAY. University closed.
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June 1982

14-18	Monday-Friday	Final examinations for Basic Colleges.
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20	Sunday	COMMENCEMENT.
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21-25	Monday-Friday	Division A vacation.
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28	Monday	Registration for Divisions B and D and January freshmen (Quarter Three). Beginning of Summer Quarter. Beginning of Division A work quarter. No Basic Colleges classes today.
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July 1982

5	Monday	INDEPENDENCE DAY observed. University closed.
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September 1982

6	Monday	LABOR Day. University closed.
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7-10	Tuesday-Friday	Final examinations for Basic Colleges.
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13-24	Monday-Friday	Division B vacation.
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16	Thursday	FALL COMMENCEMENT.
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27	Monday	Beginning of 1982-1983 academic year. Upperclass registration for Divisions B and C. Boston and Burlington freshmen complete their registration. No Basic Colleges classes today.
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Please note that the academic calendar, course schedule, and course content are subject to change or revision at any time. The University community will be notified should such changes be necessary.

Northeastern University

Bulletin 1981-1982



The Northeastern University Bulletin contains *current information* regarding programs, curricula, cooperative education opportunities, career opportunities, campus life, and admissions, and such information is not intended to be and should not be relied upon as a statement of the University's contractual undertakings.

In reading this Bulletin, whether you are using it to make your selection of a college to attend or are trying to select a career goal, a major, a concentration, or even a course, you must keep certain important points in mind.

We at Northeastern will do our best to make available to you the finest education we can provide, the most stimulating atmosphere in which to learn, and the most congenial conditions under which you may enjoy the learning experience. But the quality and the rate of progress of your academic career is in large measure dependent upon your own abilities, commitment, and effort. You will be a full participant in an educational partnership. We will and, indeed, can only make the opportunities available to you; it is up to you to take advantage of them.

This is equally true with your career upon graduation. While we can offer the opportunity through an ever-improving co-op program for you to acquire work experience, which we believe will give you an advantage over some other applicants, we cannot guarantee that you will obtain any particular job. That will depend upon your own skills, achievement, presentation, and other factors, such as market conditions at that time. Similarly, in many professions and occupations there are increasing requirements imposed by federal and state statutes and regulatory agencies for certification or entry into a particular field. These may change during the period of time when you are at Northeastern, and they may vary from state to state. While we will be ready to help you find out about these requirements and changes, it is your responsibility to initiate the inquiry because we cannot know what your expectations and understandings are unless you tell us.

In brief, what we are saying to you is that we are here to offer you educational opportunities and choices and to assist you in finding the direction in which you want to steer your educational experience. But you are a partner in this venture with an obligation and responsibility to yourself.

Northeastern University reserves the right in its sole judgment to promulgate and change rules and regulations and to make changes of any nature in its program, calendar, admissions policies, procedures and standards, degree requirements, fees, and academic schedule whenever it is deemed necessary or desirable, including, without limitation, changes in course content, the rescheduling of classes, cancelling of scheduled classes and other academic activities, and requiring or affording alternatives for scheduled classes or other academic activities, in any such case giving such notice as is reasonably practicable under the circumstances.

The University assumes no liability, and hereby expressly negates the same, for failure to provide or delay in providing educational or related services or facilities or for any other failure or delay in performance arising out of or due to causes beyond the reasonable control of the University, which causes include, without limitation, power failure, fire, strikes by University employees or others, damage by the elements, and acts of public authorities. (The University will, however, exert reasonable efforts, when in its judgment it is appropriate to do so, to provide comparable or substantially equivalent services, facilities, or performance, but its inability or failure to do so shall not subject it to liability.)

Northeastern University Basic College Bulletin 1981–1982

College of Arts and Sciences
Boston-Bouvé College of Human Development Professions
College of Business Administration
College of Criminal Justice
College of Engineering
Lincoln College
College of Nursing
College of Pharmacy and
Allied Health Professions
University College
(Alternative Freshman-Year Program)

The New England Association of Schools and Colleges accredits schools and colleges in the six New England states. Membership in one of the six regional accrediting associations in the United States indicates that the school or college has been carefully evaluated and found to meet standards agreed upon by qualified educators. Colleges support the efforts of public school and community officials to have their secondary schools meet the standards of membership.

Northeastern University supports the efforts of secondary school officials and governing bodies to have their schools achieve regional accredited status to provide reliable assurance of the quality of the educational preparation of its applicants for admission.

The Northeastern University Bulletin (USPS 989-040) is issued at 360 Huntington Avenue, Boston, Massachusetts 02115, six times a year; once in January, twice in August, once in September, and twice in October. Second-Class Postage Paid at Boston, Massachusetts. Volume IX, Number 3, August 30, 1981.



A Message from the President

In deciding to enter college or a university, you signal a commitment to the future, an intent to fulfill personal aspirations, and a determination to develop fully your talents and potential. College alone does not guarantee the future, but the right university, the right college can help you shape the future you desire.

Here at Northeastern University we believe the best institution of higher education is the one which provides the educational tools and cultural environment consistent with the diverse personal goals of students.

Perhaps the most distinctive part of the Northeastern educational experience is the Cooperative Plan of Education, through which students can discover and explore the full range of their interests. By providing you the opportunity to apply theory to practice, the Cooperative Plan allows you to test the validity of what you have learned in the classroom in a realistic occupational setting. It also permits you to bring the acquired knowledge of practical experience to your studies. Through the Cooperative Plan, you can test and confirm your professional goals. You may also discover paths leading to careers that you might not otherwise consider.

The Northeastern model of education is a manifestation of the University's commitment to quality education. For the student that commitment means programs which change to accommodate the ever-fluctuating demands of the times. It means new courses, concepts, and techniques. More important, the Northeastern commitment to quality provides the Northeastern student with superior instruction by faculty members who are experts in their fields, who share a dedication to the academic life and to the progress and personal achievement of their students.

Equally important in the Northeastern experience is the University's urban location, its position in the center of an urban environment. The University is located in the Back Bay section of Boston, a city long celebrated as one of the cultural and educational capitals of the nation. Students who come to Boston are a special kind of student, drawn here in part by the excitement of studying in an environment which only a city like Boston can provide. For Northeastern students, this means contact both on and off campus with people from different countries, different cultures, and different walks of life.

It means a chance to explore the social, cultural, and intellectual resources of a great city. It means an opportunity to keep pace with current events while living with a past enriched by symbols of the American Revolution.

The Northeastern experience is a multiplicity of things which together add up to a university education not only structured to the requirements of your field of study, but shaped also by the nature and range of your individual interests. The Northeastern experience can help bring to realization your dreams of the future.

Kenneth G. Ryder

President

Tuition and Regulations

Tuition rates, all fees, rules and regulations, courses and course content are subject to revision by the President and the Board of Trustees at any time.

Equal Opportunity Policy

Northeastern University is committed to providing equal opportunity for all. In matters involving admission, registration, and official relationships with students—including evaluation of academic performance—the University insists on a policy of nondiscrimination. Northeastern is also an equal opportunity employer. It is institutional policy that there shall be no discrimination against any employee or applicant for employment because of race, color, religion, sex, age, national origin, or on the basis of being a handicapped but otherwise qualified individual. In addition, Northeastern takes affirmative action in recruitment of students and employees. Inquiries concerning our equal opportunity policies may be referred to the University Affirmative Action Officer, Room 175, Richards Hall, telephone: 617-437-2139 or 2133.

Northeastern's efforts to comply with the Title IX Education Amendments of 1972 and Section 504 of The Rehabilitation Act of 1973 are coordinated by the Dean and the Director of Affirmative Action.

The Committee on Admissions
Department of Admissions
Northeastern University
360 Huntington Avenue
Boston, Massachusetts 02115
Telephone: 617-437-2200



This *Bulletin* has been designed to help you plan your education and career, as well as provide the information you need to apply for admission.

Naturally, we are enthusiastic about what Northeastern can offer: fully accredited programs in an exciting urban setting, plus something special—the unique learning experience of combined work and study at the institution that developed the Cooperative Plan of Education.

We encourage early application for admission and hope we can be of service to you.



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Part One

About Northeastern



About Northeastern

The Philosophy of Education

Northeastern has never forgotten its original purpose: to offer an education to all qualified students who possess both the desire for additional knowledge and the determination to acquire it in spite of possible hardships.

Because Northeastern is fully aware of the importance of using all its resources to help solve monumental — and universal — social problems, its long experience in creating opportunities for productive work as part of the total educational experience is particularly significant today. The University has also helped many members of minority groups obtain an education.

Northeastern's Boston location and the fact that it is one of the largest cooperative-plan universities in the world provide opportunities for student involvement in areas of national concern. For example, as an undergraduate you may have cooperative work assignments in such areas as air pollution research, rehabilitation, medical research, social service, environmental studies, or law enforcement. Student activities, too, offer a chance to "be where the action is": namely, in a wide variety of community-action programs, many of which help handicapped people, ghetto residents, and minority groups.

Today's socially conscious students often wish to continue their education at the graduate level. In response to this desire, Northeastern has extended its Cooperative Plan to some areas of graduate education. One example is the School of Law, which offers a curriculum substantially developed around the important social issues of our time.

Many prominent educators, including those who are graduates of traditional, non-cooperative-plan schools, are now urging that *all* college students have opportunities for on-the-job experience before graduation. These educators realize that the practical experience thus gained can strengthen college curricula.

Therefore, as a Northeastern student alternating between classroom instruction and cooperative assignments, you could be in a much better position to examine, doubt, and explore than your counterpart at another educational institution. You have the opportunity to test the opinions you have formed. You see society not for what it is, but for what it can be.



Boston and Northeastern

Northeastern University offers you more than the traditional college education.

The University's Boston location naturally attracts a diversified student body and excellent faculty, contributing to a campus community that includes people from many intellectual, political, economic, racial, ethnic, and religious backgrounds.

Newspapers, magazines, and the other media have spread the word: Boston is where young people are. A mixture of Old World tradition and modern urban America, it is a city where youth can explore a rich and varied history and contribute much to social consciousness. It is the perfect college town, where the past is appreciated, the present enjoyed, and the future anticipated.

Through the Co-op Plan, Northeastern students live in the city, work in the city, and contribute to the city. They may be teachers' aides in integrated schools, business administration interns in law offices and accounting firms, nursing trainees in some of the most famous hospitals in the world, engineering co-ops in outstanding corporations.









The City: where you can follow the well-worn cobblestones and bricks from Paul Revere's home to Faneuil Hall, the Common, and Beacon Hill; browse in old book shops or wander through art galleries along Newbury Street; shop for food in the outdoor markets of the North End; and buy jeans for sailing along the Charles River or designer originals for an opening night at the symphony, ballet, or opera.

You can spend a whole day at our now-famous Quincy Market area—shopping, sampling food, and browsing, and then, as the night spots come alive, stay on to mingle with Boston's singles.

Everyone knows about Boston's seafood, but you can also try Spanish, Chinese, Greek, German, Italian, and French food and make the round of English pubs. You can discover the varied architecture of the past (the State House, Back Bay, Beacon Hill) and the present (Government Center, Copley Square Plaza, the Prudential Center, the Christian Science Center).



Boston is a city of colleges and cultural centers. Boston University, Simmons College, Emmanuel College, and MIT are within walking distance of Northeastern. So are the Museum of Fine Arts, Symphony Hall, the Gardner Museum, the New England Conservatory of Music, Jordan Hall, Horticultural Hall, the Christian Science Center, and the Boston Public Library.

By boarding the subway, students can travel to the theater district, where pre-Broadway plays "try out," and innovative young artists produce their own contemporary hits.





Boston is a city for sports fans. Four major professional teams play in the Boston area. The world champion Celtics and the Bruins play at the Boston Garden, and Fenway Park, home of the Red Sox, is within a mile of the Northeastern campus. The New England Patriots call Foxboro Stadium home. At the Longwood Cricket Club in Brookline (the next town to Boston), you can see world-class tennis every summer. New Hampshire and Vermont offer some of the best skiing in the country. Then, of course, there are the crew races on the Charles.



Boston is where
Northeastern is—and
Northeastern is Boston.



The Boston Campus

Located on Huntington Avenue in the Back Bay section of Boston, the main campus of Northeastern University occupies approximately fifty acres, including the same land on which the Boston Americans and the Pittsburgh Nationals played the first World Series baseball game in 1903. Today, the University still provides ready access to baseball games; it is located in close proximity to the Fenway section and Fenway Park, as well as to cultural landmarks such as Symphony Hall, the Museum of Fine Arts, and the Boston Public Library, among others.



The "front door" to the campus is the Yard, or Quadrangle, facing Huntington Avenue, which is accessible to public transportation. The remaining sides of the Quadrangle are formed by Richards Hall, the Eli Student Center, and the Dodge Library. These three buildings were erected following an architectural design contest held in the early 1930s. Their white brick facades and clean lines form the nucleus of an architectural unity that is maintained throughout much of the campus.



The campus also reflects the fact that Northeastern is an urban university. Many University buildings bear the architectural design that characterizes the buildings surrounding the Quadrangle; other buildings have been acquired over the years and refurbished or recycled for the University's use. Many of these buildings were constructed quite some time before Northeastern selected its traditional architectural theme.

The campus itself has been planned to provide freedom of movement within the central academic area of classroom and laboratory buildings. During the ten-minute break between classes, students and faculty are able to reach their next classrooms along the walkways and secondary streets that provide ready access to all centrally located buildings. In addition, a network of underground corridors connect many of the buildings on campus, providing routes that are especially convenient during periods of inclement weather.

During the early 1960s, large dormitory facilities were added diagonally across Huntington Avenue from the Quadrangle. In fact, Huntington Avenue currently forms an approximate divider between the education buildings on the south and the dormitories to the north.

As the University continues to expand, parking and recreational areas are periodically relocated to the edge of campus as new buildings are added to the central academic area. At present, the University is planning construction around a second and new "front door" on the southwest border of the campus. In that area, a transit line will be relocated on the site of an old railroad line, and the station at Ruggles Street will also coordinate local bus routes and a suburban commuter rail line. This area is also the location of the newest building on Campus, West Hall, a ten-story apartment-dormitory.

Tentative plans for the future of the University include several new buildings as well as upgrading of the old. Two of these, an engineering building and a new library, will not only provide more classrooms and research and study facilities, but also will physically form a quadrangle, the key design element of spatial organization at the University. The quadrangle will be an integral part of the new "front door" to the campus.

A building currently being constructed is the architecturally dramatic addition to the Law School. This one-story structure will be half below grade, opening into a sunken garden and with a landscaped plaza on its roof. Over a block long, this plaza will be a focal point and gathering spot for the West Campus area. Adjacent to this site, a semicircular classroom building is also under construction.

To meet the ever-increasing demand for intramural sports, construction of another sport complex is being investigated. Meanwhile, the Northeastern Arena is being upgraded with plans for basketball and tennis, as well as hockey.

An ongoing renovation program is also providing more accessibility for the handicapped. Existing facilities throughout the University are being updated constantly to provide more efficient classroom, research, and office facilities while still retaining their traditional charm.



A Student's Voice

When I first came to Northeastern, I did not know what to expect. Being from a small town in New Jersey, I thought it might be hard to make the change to a large school in a major city. Once here, I realized that it was not at all difficult to adjust. Northeastern has many good things to offer, and by taking advantage of them, particularly in the area of student activities, I discovered that the transition was relatively easy.

Northeastern is strong because of the variety of programs offered. With an interest in management, I chose the College of Business Administration, and in my four years here I have had a wide variety of educational experiences. I have found the curriculum to be challenging and the faculty to be responsive most of the time. The classroom experience has been a positive one for me and has been a good opportunity for professional and personal growth.

Cooperative Education has also been a worthwhile venture for me. The Co-op Department has developed strong relationships with many major firms, thus providing better job offerings for the student body. Because students are sent through an interviewing process rather than just assigned jobs, they are encouraged to take responsibility for themselves during all phases of the co-op experience. I personally had the opportunity to work as a sales assistant for IBM. The experience has helped me formulate my career path and has linked the academic end of college to the "real world."

Students get from Northeastern as much as they are willing to put into it. I have been able to appreciate all that Northeastern has to offer by pursuing a variety of activities and by taking advantage of all its offerings, socially, academically, and "co-operatively."

Patrick J. Lott

BA82



The Faculty— Scholars, Innovators, Advisers

Coming from almost every state in the nation as well as numerous foreign countries, Northeastern faculty members are chosen for their enthusiasm, their teaching expertise, their ability to stimulate intellectual and scientific curiosity, and a genuine desire to work with people.

Northeastern faculty constantly reexamine and reevaluate curricula to keep pace with the changing needs of their students. As a result of this practice, many opportunities that few other institutions can provide are available here. For example, as a student in the College of Arts and Sciences, you may, if qualified, engage in undergraduate study not provided in conventional degree programs by developing an "Independent Major" with the assistance of a faculty adviser and the counseling services of the Dean's Office. More information on the Independent Major may be found on page 81.

In the College of Engineering, assistance in selecting courses and choosing a major begins in the freshman year. Faculty advisers, each responsible for a small group of freshman students, work under the direction of the staff of the Dean of Students, with the assistance of the Dean's staff in the College of Engineering. Upperclass students are assigned faculty advisers from their major departments. The College of Engineering curricula, under constant review by the departments, are frequently revised to keep current with developments in engineering fields. For example, computer engineering has been added to the Electrical Engineering Program. In addition, a series of courses in Alternate Energy Sources has been introduced into several of the engineering departments.

The Colleges of Engineering and Arts and Sciences jointly award a new Bachelor of Science degree in Computer Science.

The College of Business Administration offers a variety of concentrations, plus an option for a self-designed concentration. If you need academic counseling, the Student Personnel Office of the College offers its services on an open-door basis. There is also a Student Advisory Committee, which represents your interests and viewpoints and prepares teacher/course evaluations.

The University's Boston-Bouvé College of Human Development Professions offers major areas of study in Elementary and Secondary School Teaching, Human Services, Speech and Hearing, School and Community Health Education, Physical Education, Physical Therapy, and Recreation and Leisure Studies. Physical Education students may prepare for elementary or secondary school teaching with options for special concentrations in athletic training, coaching, gerontology, and adapted physical education. There are nonteaching physical education options in cardiovascular health and exercise and sports communication. The Health Education Program offers the opportunity to prepare for teaching in public schools or working as a health educator in a community agency setting. Recreation and Leisure Studies students may select a specialization from one of three tracks: Therapeutic Recreation, Recreation Management, or Outdoor Education and Recreation. The Department of Physical Therapy offers one of the few programs in the United States developed on the cooperative plan with alternating work-study experiences related to the curriculum, thus strengthening classroom and laboratory learning. In fact, all programs in the college are offered on the five-year plan.

Cooperative work experience is particularly important for students in



the Boston-Bouvé College of Human Development Professions. Opportunities are available for selected students to receive assignment in cooperative school systems, community or government agencies and institutions, hospitals, or libraries. In these settings, students may enjoy unique experiences that greatly enhance self-confidence and professional growth.

Boston-Bouvé College of Human Development Professions and the College of Arts and Sciences offer an undergraduate major in Human Services to students who, in addition to meeting the requirements of their "home" college, take courses in both colleges. In their junior and senior years, Human Services majors must participate in supervised work experiences. For details of the program, see page 57.

Northeastern's College of Nursing Programs were the first in the country to be offered on a "co-op" basis. Through affiliation with health-care agencies in the Greater Boston area, students are provided a variety of opportunities to acquire clinical experience. Students are assigned a faculty adviser to assist in their career development. The College encourages student representation on the majority of its standing committees.

If you decide to major in Pharmacy, you may select courses in clinical and hospital pharmacy, community pharmacy, or areas that may give you the opportunity to prepare for a research career in one of the

pharmaceutical sciences. The program also includes the possibility of taking courses from other schools within the University.

Students in Allied Health Professions may prepare through classroom study and clinical experience to assume a professional role in one of today's health fields.

Medical laboratory science, for example, is an area of health care concerned with the laboratory examination of material necessary for the proper monitoring of health and for the diagnosis and treatment of illness. Working in a variety of specialized fields, such as microbiology, blood banking, hematology, or clinical chemistry, or as a generalist in all these areas, medical laboratory technicians and technologists are respected and important health professionals. Northeastern's program in Medical Laboratory Science offers you the opportunity to prepare for laboratory duties at several levels by combining internship with co-op positions or part-time jobs during your baccalaureate degree program. Upon graduation, you may wish to take national certification examinations or pursue a graduate study program.

The Health Record Administration program offers you the opportunity to prepare for a variety of positions in the area of documentation of health care.

The Respiratory Therapy program helps to prepare students for careers as life-support specialists. The curriculum leads to a Bachelor of Science degree in Respiratory Therapy.

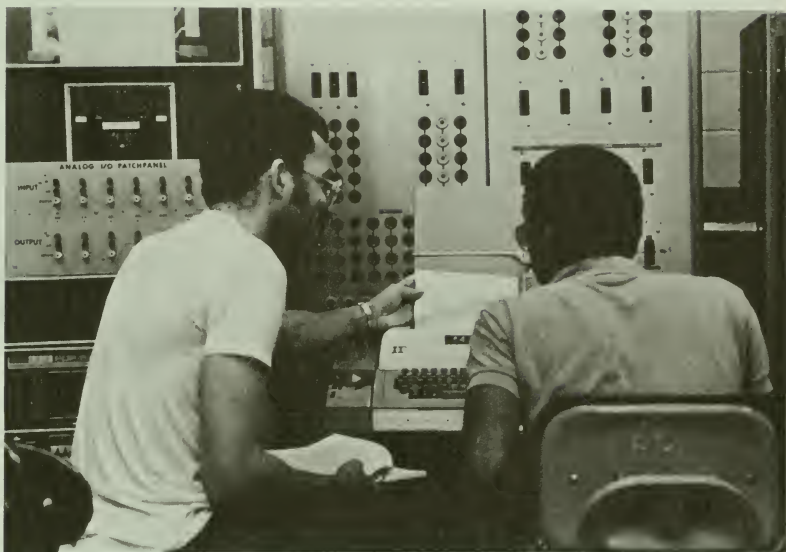
A new Bachelor of Science degree program in Toxicology is also offered by the College of Pharmacy and Allied Health Professions. This program emphasizes the areas of clinical, environmental, forensic, and industrial toxicology, thereby training students for employment opportunities in clinical, government, and industrial settings monitoring substances for their hazardous effects.

Lincoln College's Bachelor of Engineering Technology (BET) Program is distinctly different from typical engineering curricula. The technology programs provide an opportunity to prepare for what can be a unique and pivotal position on the professional-technologist-craftsman team. The freshman year of the BET program contains course work that can also be used as excellent preparation for entering colleges of engineering.

The Cooperative Plan and a combination of applied and theoretical courses contribute to the academic program at the College of Criminal Justice. Graduates have found careers in law enforcement, private security, criminalistics, corrections, and rehabilitation and social services, as well as in many other areas of the criminal justice system. Because of the academic nature of the program, many students have also undertaken graduate study in criminology, law, public affairs, and social work.

It has been said that "the most essential thing in the work of education is that sympathetic touch of life on life. It is by that fine process that personality is developed, matured, and enriched. . . ."

One reason for the success of the Cooperative Plan at Northeastern University is that "touch of life on life," which is made possible by the close association between the more than 800 scholars on the faculty of the Basic Colleges and their students. When you enter Northeastern, you are assigned an academic adviser who works with you during your freshman year on a wide variety of matters concerning your personal and academic development. Advisers are also available for academic counseling throughout your upperclass years. Obviously, it is the student's responsibility to take advantage of these opportunities.



Research

Scholarly endeavors are an important aspect of Northeastern's activities. Through research faculty members are able to stay abreast of the most recent developments and contribute to advances of knowledge in their fields of interest. Research creates a stimulating atmosphere which enhances the vitality of the University and the benefits students derive from the learning experience.

Northeastern University has a broad spectrum of research programs which are supported by a variety of agencies such as the National Science Foundation, National Institutes of Health, and the Department of Education. Private industry, foundations, and the University itself also support many projects. While much of this research is carried out by the faculty members themselves and their graduate students and post-doctoral research associates, there are ample opportunities for undergraduate students to work on particular projects. This research participation can take place either as part of regular academic programs or through cooperative work assignments.

Currently active projects span almost all academic and professional fields. They deal with topics such as nuclear physics, cancer diagnostic techniques, marine biology, analytical chemistry, market analysis, labor economics, criminology, research rockets, vision, metallic glasses, and many others. Students interested in exploring the opportunities for research participation should enquire about them in the appropriate departmental offices.

Northeastern University has numerous distinguished faculty members, many of whom have been honored with prestigious awards, including Sloan Fellowships, Guggenheim Fellowships, and National Institutes of Health Career Research Awards. Faculty members lecture literally the world over, from Moscow to Paris to Sidney, Australia. In addition, faculty members serve as United States government consultants and participate on many national and international committees. You will be proud to know these men and women as professors in your classrooms.

The Cooperative Plan

The Cooperative Plan brings relevance to your college education. By offering a schedule alternating between classwork and off-campus experiences, Northeastern helps you to realize your potential and develop personal maturity. The process itself—as you compare classroom theory with its realistic application—enlivens class work. Upon graduation you will have not only a degree, but also up to two years of valuable experience to offer a potential full-time employer. In addition, the money you earn on cooperative assignments can help to defray the cost of tuition, books, and incidental expenses.

You will be assigned a faculty coordinator who is responsible for all phases of your cooperative program and who will assist you in gaining maximum value from your education at Northeastern. Personal interviews, in which your academic progress and evaluations of your previous work experiences are reviewed, provide the basis for referral to specific opportunities that could help you realize your career objectives. Your coordinator is a specialist who keeps abreast of activities in specific areas in order to provide counseling on opportunities and trends in these areas. In general, starting assignments tend to be of a routine nature, to be followed by increasingly professional applications as your education and abilities increase. Subject to economic conditions and your willingness to consider alternative opportunities, you can expect to work on responsible and challenging assignments during your participation in the program.

At some point in your program, you may wish to participate in an activity other than paid employment during a cooperative period. You may wish to travel abroad, spending time in one or several foreign countries learning about the customs, the culture, and the people. You may wish to volunteer your services to your local hospital or spend some time on an Indian reservation in the Southwest. Or you may wish to take specialized courses at another institution. Time to engage in these and similar activities can be arranged with your coordinator as a part of your Cooperative Education Program.

Most cooperative curricula leading to the baccalaureate degree require five years. Programs consist of a freshman year of three consecutive quarters of full-time study followed by four upperclass years in which you alternate periods of classroom attendance at Northeastern with periods on cooperative assignment. Some programs vary slightly from this pattern to meet professional requirements in their particular fields.

Associate degree programs in Allied Health Professions require three years to complete, with two upperclass years on co-op.

Participation in the Cooperative Plan is a requirement for all students in the Basic Colleges except those enrolled in the College of Arts and Sciences. Although the majority of students in the College of Arts and Sciences choose to take advantage of the Cooperative Plan, the College offers its students the opportunity to select a "full-time" program in which eight quarters of upperclass study may be completed in three years.

Further details on the cooperative program are available in a booklet entitled *Co-opportunities*, which the Department of Admissions will be happy to send you on request.



Alumni Association

More than 86,000 alumni are united within the Alumni Association, created to establish a mutually beneficial relationship between Northeastern and its graduates. The Association is governed by an Executive Committee elected from the alumni community. Membership to the Association is automatic upon graduation.

The Association is headquartered in the Office of Alumni Relations in 310 Churchill Hall; telephone 617-437-3186. The official records and addresses of alumni are maintained in the Office of Alumni Records, telephone 617-437-2792.

Activities of the Association include the Homecoming celebration, presentation of the Outstanding Alumni Awards, and the annual presentation of Professional Promise Awards to outstanding seniors in each of the Colleges. Alumni officers, in conjunction with the Office of Alumni Relations, have established a series of enrichment/education programs to meet the contemporary vocational and avocational needs of Northeastern's graduates. The Alumni Association has also initiated a successful group travel program to provide the alumni of Northeastern with interesting and economical opportunities for foreign travel. Notice of all activities is provided in the alumni magazine *Northeastern Today*, and in special publications.

Regional alumni clubs have been established from coast to coast. All alumni are eligible to become members of these organizations. The clubs meet periodically with varied programs, often in conjunction with professional and athletic events, faculty visits, and service projects. Additionally, alumni class organizations conduct reunions for their respective classes every five years.

The Association sponsors and assists constituent organizations that focus on common professional and avocational interests and college affiliations. These groups have their own officers and conduct various programs throughout the year.

The Alumni Association provides a valuable service to the University and the community by sponsoring regional admissions conferences for high school students and the parents of students who are interested in attending college. In addition, alumni volunteers in many metropolitan areas across the nation represent the Admissions Office on a continuing basis at high schools and community colleges.

Part Two

Academic Programs



Academic Programs

Quarter-Hour Credits

Northeastern University operates on a quarter-system calendar. All courses are evaluated in terms of quarter-hour credit. A quarter-hour credit is equal to three-fourths of a semester-hour credit.

Classes at Northeastern are scheduled in different modules.

In assessing quarter-hour weights for courses, the following statement applies.

One quarter hour of credit is equal to fifty minutes of instruction per week, plus two hours of preparation.

Tuition and Regulations

Tuition rates, all fees, rules and regulations, courses, and course content are subject to revision by the President and the Board of Trustees at any time.

College of Arts and Sciences

Richard Astro, Ph.D., *Dean*

J. Edward Neighbor, Ph.D., *Associate Dean and Director of Graduate School/Sciences*

Susan E. Rindler, Ph.D., *Associate Dean and Director of Graduate School/Humanities and Social Sciences*

Deborah J. Hartry, M.Ed., *Assistant Dean (Graduate and Undergraduate Affairs)*

Timothy P. Perkins, M.A., *Assistant Dean (Student Affairs)*

Ruthann T. Stiles, M.A., *Assistant Dean (Faculty Affairs)*

E. Wallace Coyle, Ph.D., *Assistant to the Dean (Student Affairs)*

Mary Mello, B.A., *Assistant to the Dean (Student Affairs)*

Four- and Five-Year Programs The College of Arts and Sciences offers a wide range of courses and degree programs enabling students to plan a course of study in keeping with their own interests and aptitudes. Students in the College may earn a Bachelor of Arts in all major programs or a Bachelor of Science degree in most major programs. For either degree, the student is initially admitted to the College in one of two broad areas of study: social sciences-humanities, or sciences-mathematics.

In all majors, students may choose between a four-year full-time program and the five-year Cooperative Plan, which offers opportunities for gainful employment or experiential assignments. Students who choose the Cooperative Plan are normally eligible to participate when they achieve sophomore status or above.

The Freshman Program

The freshman-year program consists of three quarters of course work with the selection of courses in five or six different subjects, depending on a student's intended major. Normally, a student takes four courses in each quarter, a total of twelve for the year. In most majors, freshmen are required to take two quarters of English, writing and literature; one quarter of college-level mathematics; and two quarters from each of the wide-ranging divisions of the curriculum (humanities, natural sciences, social sciences). Students are provided guidance by a faculty adviser in the selection of courses and are encouraged to consult their faculty advisers early in the freshman year.

The Upperclass Years

As in the freshman year, upperclass students receive faculty guidance in selecting courses and in choosing a major field of specialization. After the latter decision is made, upperclass students are identified with their department, its faculty, and other students in the same major field.

Graduation Requirements

Quantitative Candidates for either the Bachelor of Arts or Bachelor of Science degree who entered in or after the fall quarter of 1974 must successfully complete 176 quarter hours of credit, of which thirty-two quarter hours may be taken outside the College of Arts and Sciences.

Residency Candidates must complete either 75 percent of the degree credit at Northeastern or the last three full quarters (a minimum of twelve full courses) at Northeastern.

Qualitative Candidates must achieve a minimum cumulative average of 2.0 (grade of C).

Freshman English All degree candidates must complete one quarter of Freshman Composition and one quarter of Introduction to Literature. Nor-

mally, this will be done by completing courses 30.113 and 30.114 at North-eastern.

Major Candidates must complete successfully the courses specified as major requirements. A complete listing of these required courses is published in the *Basic Day College Course Descriptions and Curriculum Guide*.

Distribution

All course work offered in the College of Arts and Sciences curricula is identified within one of three broad areas: humanities, social sciences, and science-mathematics. All Bachelor of Arts candidates (and Bachelor of Science candidates in English and Speech Communications) must complete forty quarter hours in the two areas outside of the major. For example, a major in History, which is considered a social science, must complete forty quarter hours of course work in the humanities and science-mathematics areas. The course work for distribution must contain a minimum of sixteen quarter hours in one area and twenty-four quarter hours in the other area of the curriculum. A major in History, for example, satisfies the requirement by completing course work in one of the following ways: sixteen quarter hours in humanities and twenty-four quarter hours in mathematics and/or science, or twenty-four quarter hours in humanities and sixteen quarter hours in mathematics and/or science, or twenty quarter hours in mathematics and/or science and twenty quarter hours in humanities. The departments are listed here with the appropriate curriculum area headings:

Humanities Art, Drama/Speech, English (all offerings beyond the freshman level), Modern Languages (all offerings except elementary levels), Music, Philosophy, Journalism, and certain African-American Studies courses.

Social Sciences African-American Studies, Anthropology, Economics, History, Human Services, Political Science, Psychology, and Sociology.

Science-Mathematics Biology, Chemistry, Mathematics, Earth Sciences, and Physics.

To determine the distribution requirement met by a course if selected from the interdisciplinary programs in Human Services or African-American Studies, students are advised to consult an academic adviser in the Dean's office.

Foreign Language All candidates for the Bachelor of Arts degree (and candidates for the Bachelor of Science degree in Biology) must attain a level of proficiency in a modern foreign language indicated by passing grades in intermediate-level college courses or by meeting a comparable criterion that has been approved by the Modern Languages Department. This requirement will be regarded as satisfied for students who earned an average grade of C or better in a full, four-year language sequence in secondary school; those who earned an average grade of A in a three-year language sequence in secondary school; and students for whom English is a foreign language. Other students may satisfy the requirement by passing a proficiency examination.

For students who have not met the foreign language requirement at the time of entrance, the entry level into foreign language study depends upon the scope and level of prior study. The normal sequence for students with no prior preparation is two quarters of elementary-level language and two quarters of intermediate-level language. The Modern Languages Department will determine an appropriate entry point at which students who have partial language preparation may begin completing the requirement.

Graduation with Honors

Candidates who have completed all degree requirements and have attained superior grades in their academic work will be graduated with honor (3.00 to 3.499 cumulative average); high honor (3.50 to 3.749 cumulative average); or highest honor (3.75 to 4.00 cumulative average). Transfer students who have completed all degree requirements and at least six full quarters of course work in the College of Arts and Sciences at an honors level as defined above may graduate with honors. The course work completed at other institutions, however, when weighed and averaged in with Northeastern University's work, must equal the University's honors level. The level of honors designated on the Northeastern diploma and transcript shall be no higher than the honors level attained as a Northeastern student.

Commencement Exercises

The College of Arts and Sciences holds commencement exercises each June and September.

Accreditation

All programs in the College of Arts and Sciences are fully accredited by the New England Association of Colleges and Secondary Schools.

Honors Programs

Freshman Honors Each year, upon admission to the University, a small number of carefully chosen freshmen are invited to participate in the Freshman Honors program. Selection is based on a student's academic promise as reflected in past achievement, strong recommendations from secondary schools, and high scores on College Entrance Examination Board tests.

Participation in the Freshman Honors program is more than a mark of recognition. It allows flexibility in planning a course of study and permits the election of courses otherwise unavailable to freshmen. For example, Honors freshmen meet the freshman English requirement with Honors English, a two-quarter program designed to encourage creative writing and literary analysis. They may also participate in one of several honors colloquia offered each year. The colloquia are seminars on topics that change annually and range from the study of American Colonial History to investigations into Special Relativity. Enrollment is strictly limited to provide the best atmosphere for the exchange of ideas and closer contact with faculty and students.

At the end of either the freshman or sophomore year, students with a sufficiently high average are notified of their eligibility to join the Honors program whether or not they were Honors freshmen. Sophomores and middlers who join are then free to enroll in a colloquium of their choice.

Junior-Senior Honors Juniors and seniors with a cumulative average of 3.5, no "I's" or "F's," and no grade of C or below in their major field are invited to do honors work during two or three of their last four quarters, affording them the opportunity to develop their special talents and interests. Honors work usually takes the form of special research leading to a thesis or presentation, under the sponsorship and supervision of a faculty adviser, with a proposal being submitted to the Honors Committee for approval before work on the project can begin.

Students who successfully complete two or three quarters of honors work are awarded departmental honors at graduation.

Further information is available at the Office of the Dean.

Combined Program with Professional Schools

Students who have completed at least three-fourths of the course work required for a baccalaureate degree in the College of Arts and Sciences and are accepted into an approved professional school of dentistry, law, medicine, optometry, osteopathy, or veterinary medicine will be eligible for the Bachelor of Arts or Bachelor of Science degree at the end of their second year in professional school. At least two-thirds of work for the baccalaureate degree must be earned in residence at Northeastern, and all other College of Arts and Sciences requirements must be fulfilled, the residence requirement having been completed prior to entrance into the professional school. Under this program, a preprofessional student may reduce by one year the time normally required for obtaining both the undergraduate and professional degrees.

Student Services

Preprofessional Advising For students preparing for a career in medicine or related professional medical fields, the College of Arts and Sciences offers opportunities to discuss minimum requirements for admission with a faculty member designated as the premedical adviser. The Department of Graduate Placement Services (132 Nightingale Hall) also provides information and advice on procedures for admission, preparation of applications, and the scheduling of Medical College Admissions and Dental Aptitude tests, as well as other tests, which are usually to be taken well in advance of the anticipated admission date. For students preparing for a career in law, the Department of Graduate Placement Services provides information and advice on general curricular requirements for admission to law schools, procedures for admission, preparation of applications, and scheduling of the Law School Admissions Tests.

Graduate School Advising The Northeastern Graduate School of Arts and Sciences and the Department of Graduate Placement Services offer information and advice on graduate school admissions procedures, preparation of applications, and the scheduling of examinations required for postgraduate programs.

Special Programs

For additional special programs in the College of Arts and Sciences, consult page 81.

African-American Studies Department

Holly M. Carter, Ph.D., *Associate Professor and Chairperson*

Associate Professor

Joseph D. Warren, M.A.

Assistant Professors

Carolyn W. Arnold, D.Sc.

Jordan Gebre-Medhin, Ph.D.

Jo Ann B. Gray, M.A.



Professional Preparation

Aims The Department of African-American Studies at Northeastern University offers an interdisciplinary study of the black experience with two central purposes: 1) to provide academically rigorous and exciting courses for all students interested in the field, and 2) to contribute to the students' ability to develop research and analytical skills and to apply this learning, whatever their disciplines or career objectives.

By presenting fresh perspectives while remaining firmly grounded in traditional academic standards, the courses in the Department of African-American Studies aid the student in developing the skill of critical thinking. In addition, the curriculum is designed to present the student the opportunity to attain a facility with language. Both of these skills—sound thinking and effective use of language—are symbols of a meaningful liberal arts education and help to form a strong basis for professional or graduate work.

Description of the Major A major in African-American studies offers preparation for a wide range of professions, including education, law, medicine, and business.

Students majoring in the Department may select an area of concentration from seven subject areas and work under the supervision of a faculty adviser.

Students from other disciplines should find that the courses in African-American Studies are designed to complement and enrich their chosen concentrations.

A View of the Major Courses in the Department are organized under seven major subject areas: applied science, economics, education, history, humanities, political science, and sociology/psychology. Courses taken in the department may be credited toward degree requirements for all arts and sciences students.

African-American Studies majors may study for either the Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) degree. All majors are required to take the following subjects:

- 25.170 Economic Issues in Minority Communities
- 25.195 Directed Study for Senior Thesis
- 25.194 Field Research Seminar for Seniors
- 25.201 African-American Literature I
- 25.210 Contemporary Issues in Black Society
- 25.212 The Black Family
- 25.237 African-American History I
- 25.191 Research Seminar
- 25.255 Public Policy Analysis
- 25.269 Race Relations in America

Faculty advisers work with students to help them select electives within their chosen areas of concentration to fulfill their distribution and language requirements for the degree of Bachelor of Arts, or career package programs for the degree of Bachelor of Science.

Description of the Minor In an effort to meet the educational and career needs of students who are majoring in other areas, but have special interests in African-American Studies, the Department offers a minor in African-American Studies. The program consists of a core of three required courses, as well as courses selected from a broad range of electives and minor concentration clusters to accommodate individual needs. To qualify for a minor in African-American Studies, a student must successfully complete twenty-eight quarter hours in the field, as indicated below:

Required Courses

- 25.200 African-American Studies
- 25.191 Research Seminar
- 25.269 Race Relations in America

Elective/Concentration Clusters

Any four courses in African-American Studies of an advanced nature to be selected by the student and the department adviser, in conformance with the student's education and career needs: e.g., a student interested in health careers may select a list of minor electives that would include Black Scientific Development, Community Medicine and Health Care, the Epidemiology of Black Diseases, and Poverty and Health Care.

Art Department

Peter Serenyi, Ph.D., *Professor and Acting Chairman*

Professor

Robert L. Wells, M.A.

Associate Professors

Samuel Bishop, M.A., M.F.A.

Ronald Davis, M.Ed.

Wheaton Holden, Ph.D.



Professional Preparation

Aims In addition to offering a major in Art, the Art Department aims to introduce all interested students to the various forms and styles of expression in the visual arts.

Description of Major

Courses cover the evolution of architecture, sculpture, painting, graphic arts, photography, and film art, with emphasis on styles, techniques, and cultural implications—some from prehistoric times to the present. Studio courses are also offered in areas of painting, drawing, graphic arts, photography, filmmaking, and animation filmmaking. Students have the opportunity to obtain a working knowledge of the structure of art and to prepare for graduate school.

The availability of major museums, galleries, and contemporary and historical films in the city of Boston provides students with a unique opportunity for enrichment in the Art major program.

A View of the Major

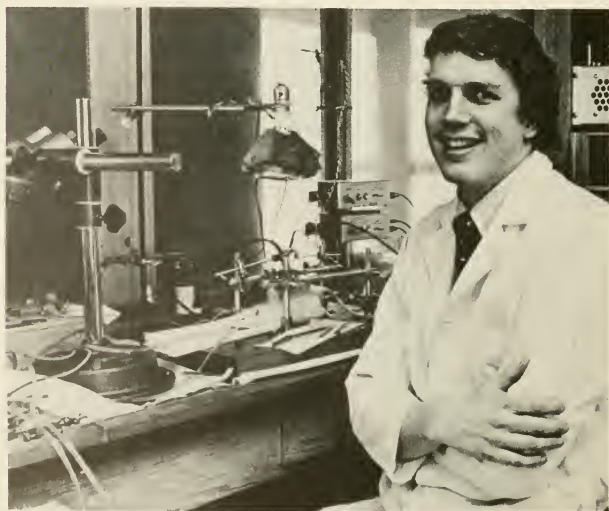
For students interested in art, members of the Department offer individual guidance in the selection of courses best suited to individual goals.

Art majors are required to include the two-part course History of Art, twelve art courses, one elective each in philosophy and music, and two courses in history.

Candidates for the Bachelor of Arts degree must also show proficiency in a foreign language through the collegiate intermediate level or must take courses to reach that level. The Bachelor of Science program, which does not include a modern foreign language requirement, offers more concentration in the major area.

Minor in Art

Students majoring in other departments may choose a minor supervised by the Art faculty. The Department offers a general minor program of study as well as concentrated minor programs in the history of architecture, history of painting, film art, and studio art.



Biology Department

David C. Wharton, Ph.D., *Professor and Chairman*

Professors

Francis D. Crisley, Ph.D.
Janis Z. Gabliks, Ph.D.
Charles Gainor, Ph.D.
M. Patricia Morse, Ph.D.
Nathan W. Riser, Ph.D.
Fred A. Rosenberg, Ph.D.
Ernest Ruber, Ph.D.

Assistant Professors

Joseph L. Ayers, Jr., Ph.D.
Donald P. Cheney, Ph.D.
William C. Hartner, Ph.D.
Gwilym S. Jones, Ph.D.
Daniel C. Scheirer, Ph.D.
Duncan R. Munro, Ph.D.
Michael D. Strauss, Ph.D.

Associate Professors

Kostia Bergman, Ph.D.
Charles H. Ellis, Ph.D.
Helen Lambert, Ph.D.
Charles A. Meszoely, Ph.D.
Joseph V. Pearincott, Ph.D.
Phyllis R. Strauss, Ph.D.
Henry O. Werntz, Ph.D.

Professional Preparation

Aims The Biology major offers students a fundamental background in the organization and the processes of life, from the level of molecules and cells through the level of organs and organ systems to the level of populations, species, ecosystems, and evolution. The major also offers the mathematical, chemical, and physical background necessary to understand biology and may help to train students in practical scientific skills associated with each of these areas of study. Finally, it allows students to begin to specialize in a subdiscipline of biology.

Description of Major The major consists of ten biology courses in addition to those required in chemistry, physics, and mathematics. Six of the biology courses constitute a required core sequence: Principles of Biology I, II, and III; Environmental and Population Biology; Genetics and Developmental Biology; and Cell Physiology and Biochemistry. A student normally should take the core before taking a required minimum of four upperclass biology electives. It is usually possible to follow the prescribed sequence if a student has decided on the major in the freshman or sophomore year. For students who may enter the major in the middler year, it is often possible to complete the major in the normal time by taking some of the electives concurrently with core requirements, provided the students previously have taken freshman-level science and mathematics.

To graduate with a major in Biology, a student must have a cumulative Quality Point Average (QPA) of 2.0 for all science and mathematics courses required for the major. There are two programs within the Biology major, one leading to the Bachelor of Arts degree and the other to the Bachelor of Science degree. The B.A. program retains the College's requirements in humanities and social sciences; the B.S. program is more rigorous and extensive in its mathematics and science requirements and thus offers better preparation for postgraduate study. The difference is mainly one of emphasis, however, and it is possible for a student to meet both sets of requirements.

After completing the core program, students interested in independent research may arrange with individual faculty to undertake Directed Study; if eligible, they may be invited to undertake a more extensive Honors Program involving up to four quarters of research.

The Department publishes a booklet, *The Biology Undergraduate Advisory Handbook*, which explains the required and recommended courses and the QPA standards in science for Biology majors. The *Handbook* is available in the Biology Office, Room 403, Richards Hall. Students intending to major in Biology should obtain a copy as early as possible after their enrollment at Northeastern. Biology majors wishing to pursue a minor in another field should see their biology adviser as early in their program as possible, for coordination of major and minor requirements.

A View of the Major The Biology major is excellent preparation for a wide variety of careers or professions in the life sciences, including medical, dental, and other health-related professions. Graduate study leading to a master's or doctoral degree can open careers in upper-level teaching and/or research in one of the specialized areas of biology, such as zoology, botany, microbiology, physiology, ecology, marine biology, cell biology, or biochemistry. Biology majors may also go into postgraduate training in such health-related areas as nutrition, public health, or medical technology.

Biology majors not wishing to enter professional or graduate schools may find employment on technical levels in federal, state, industrial, hospital, or university laboratories doing research, survey, or quality control in a biological area. After graduation they may also be able to enter directly into positions in industries involved in the manufacture and distribution of pharmaceuticals, biological products, food, or scientific equipment. Many biologists are employed at all levels in fisheries, forestry services, county agencies, museums, aquariums, research vessels, and marine stations.

Preprofessional students (for example, premedical or predental) are urged to consult with the preprofessional advisory committee early in their careers at Northeastern. *Students are cautioned that the successful completion of the required preprofessional courses by no means ensures admission to a professional school since the number of applicants usually far exceeds the space available.*

Laboratories

The Biology Department has specially equipped teaching laboratories for general biology, botany, anatomy, microbiology, microscopy, physiology, zoology, and cell biology. Equipment for field work, museum specimens, models, charts, and closed-circuit television are employed in laboratory instruction. Additional facilities include aquarium and animal rooms, stock-rooms, preparation rooms, research areas, and a large suburban greenhouse and woodlot. The Department has close association with the University's Marine Science Institute at Nahant and with the University's Electron Microscopy Center.

Description of Minor A minor in Biology consists of any six 18:— courses for which the student has the prerequisites, plus two more courses, which may be 18:— courses or courses from other departments that serve as prerequisites for Biology courses. At least five of the total eight courses must include laboratory, and a student may not count toward the Biology minor more than one course, or course sequence, that covers substantially the same material (examples of such duplication would be 18:114-115 and 18:116 and 18:143-144-148, or 18:111-113 and 18:131-133).

To accommodate the needs of students majoring in many different fields, the Biology minor requirements have been phrased in a very general and flexible way. To ensure that course selection is sound and appropriate to the student's background, *each student's Biology minor program must receive the signed approval of the Biology minors' adviser.* The student should obtain this required approval of his/her program before the start or, at the latest, by the end of the first Biology course. Failure to do so may result in courses' not being counted for a minor, if the adviser finds them to have been inappropriate selections.

The academic standards for a minor in Biology are the same as those for a Biology major; namely, a QPA of 2.0 must be achieved for those courses used to satisfy the minor requirements. Courses taken on a pass/fail basis are not acceptable for minor credit.

Suggested course groupings for a Biology minor have been developed for students with different backgrounds in college mathematics and science. The "core" minor for students with considerable course work in mathematics, chemistry, or physics provides the basic foundation on which a Biology major is built, without advanced specialization. For students with less or no college mathematics/science background, two other minor options provide a first-level exposure to the basic principles of Biology, plus an opportunity to achieve some advanced specialization in plant and/or animal studies or to explore human biology and the problems of the environment. For further information, consult the Biology minors' adviser.

Chemistry Department

Philip W. Le Quesne, Ph.D., *Professor and Chairman*

Professors

Geoffrey Davies, Ph.D.
Bill C. Giessen, Dr.Sc.Nat.
Arthur M. Halpern, Ph.D.
Barry L. Karger, Ph.D.
John L. Neumeyer, Ph.D.
Robert F. Raffauf, Ph.D.
William M. Reiff, Ph.D.
Robert A. Shepard, Ph.D.
Alfred Viola, Ph.D.
Karl Weiss, Ph.D.

Associate Professors

David M. Howell, Ph.D.
Conrad M. Jankowski, Ph.D.
Elmer E. Jones, Ph.D.

John L. Roebber, Ph.D.
Efthalia J. Spinos, M.S.
Paul Vouros, Ph.D.
Robert N. Wiener, Ph.D.

Assistant Professors

David A. Forsyth, Ph.D.
Kay D. Onan, Ph.D.
Mary J. Ondrechen, Ph.D.
David E. Seitz, Ph.D.

Instructors

James F. Hall, Jr., M.S.
Bernard J. Lemire, B.S.,
Supervisor of Laboratories



Professional Preparation

Aims The educational objectives of the Chemistry Department are to give students the opportunity to: 1) experience the intellectual stimulation of studying a physical science; 2) grasp the basic principles and techniques that are central to a variety of chemistry-related careers; and 3) prepare for graduate study in chemistry or related fields. These objectives are implemented by the Department's highly research-oriented faculty, including experts in various fields of the science.

Description of Major Chemistry is concerned with the structure and properties of substances and with the transformations they undergo. The boundaries between the classical areas of analytical, inorganic, organic, and physical chemistry are no longer distinct. Moreover, significant overlaps have developed between chemistry and the fields of biology, physics, mathematics, medicine, and engineering. These trends are reflected in the Chemistry major programs at Northeastern.

Modern chemistry is the cornerstone for a large number of professions and industries. Challenging career opportunities exist in almost all technical fields in which functions such as research, development, production, sales, market analysis, quality control, and management are involved. *The Chemistry major programs provide excellent preparation for the study of medicine, dentistry, and for advanced study in many fields of science.* For students who choose to participate in the Cooperative Plan of Education, there are additional professional benefits. The practical experience gained on a job places chemistry in a more realistic perspective than does academic training alone and may lead to better employment prospects upon graduation.

The Department publishes an informational booklet, *Chemistry at Northeastern*, which describes the Chemistry major curriculum and requirements in detail. Interested students may obtain a copy of this booklet in the main office of the Chemistry Department, Room 102, Hurtig Hall.

A View of the Major The Department offers two major programs that lead to the B.S. or B.A. degree. Both are based normally on the five-year cooperative-study plan, but academically equivalent four-year study options are also available. The two degree curricula differ mainly in their arts and sciences content and advanced science course requirements. Departmental advisers are ready to provide assistance and counseling to all Chemistry majors in relation to course selections and other professional matters.

The Chemistry major programs at Northeastern are based on a novel, career-oriented concept. The basic core of courses in chemistry, mathematics, and physics may be supplemented with selected courses in other areas. Thus, the program offers the student an opportunity to prepare for any one of a wide variety of careers. Our alumni have pursued careers in many areas, such as:

- Technical employment in industry
- Chemical sales and management
- Teaching and research *via* graduate study
- Clinical chemistry, medicinal chemistry, and pharmaceutical chemistry
- Geochemistry, mineralogy, and environmental chemistry
- The health professions (medicine, dentistry)
- Forensic chemistry

Departmental advisers suggest various course options for students interested in preparing for any of the above careers. The variety of careers

open to persons with strong backgrounds in chemistry is extensive, and other options can be constructed from the large number of courses offered at the University.

The core curriculum is common to all options. It consists of courses in English, calculus, physics, and basic chemistry, which are taken in the freshman year. Students may be exempt from the General Chemistry courses by passing equivalency tests; in this case other courses are substituted. In the upperclass years, students take courses in organic, inorganic, physical, and analytical chemistry. For the B.S. degree, some additional advanced mathematics and science courses are required. German or Russian is strongly recommended for students who plan to pursue graduate study in the sciences.

Qualified students are encouraged to undertake a research project under the supervision of a faculty member. An honors program is open to especially able students.

Chemistry Minor A minor program in Chemistry is available for students majoring in other fields. It consists of courses in general, analytical, organic, and physical chemistry. Further information may be obtained from the Chemistry Department Office, Room 102, Hurtig Hall.

Accreditation

The Chemistry programs at Northeastern are approved by the American Chemical Society. The B.S. degree meets the Society's requirements for certification, which means that a certified graduate is eligible for full membership in the A.C.S. after two years of experience.

Facilities and Research

The main facilities of the Chemistry Department are housed in Hurtig Hall, a modern, air-conditioned, five-story building that contains equipment for up-to-date teaching and research. All faculty offices are located there, as is the James Flack Norris Room, which serves as a lounge for undergraduate Chemistry majors. Additional research facilities are located in the Forsyth Building (Photochemistry and Spectroscopy Laboratory) and in the Institute of Chemical Analysis, Applications, and Forensic Science. The Department's major research equipment includes electron microscopes, a mass spectrometer, lasers, X-ray diffractometers, nuclear magnetic-resonance and electron spin-resonance spectrometers, Gouy and Faraday magnetic balances, photoelectron and Mossbauer spectrometers, and a variety of ultraviolet and infrared spectrometers. Undergraduate students taking advanced courses or working on research projects may utilize certain of these instruments.

Active research programs are under way in synthetic and mechanistic organic chemistry, natural products chemistry, inorganic chemistry, chemical oceanography, photochemistry and spectroscopy, analytical chemistry, separation science, and solid-state chemistry.

Drama Department

Eugene J. Blackman, M.A., *Professor and Chairman*

Professor

Mort S. Kaplan, M.A.

Associate Professor

Jerrold A. Phillips, Ph.D.

Assistant Professor

Richard E. Schreiber, M.F.A.

Instructor

Ingrid H. Sonnichsen, M.A.

Technical Director

Russell Swift, B.F.A.



Professional Preparation

Aims Theatre, one of the most ancient of all art forms, is still a moving force in our society because it uniquely involves the spectator to a degree unmatched by most creative and communicative arts.

At Northeastern, students in Drama are offered the opportunity to prepare for careers in educational and professional theatre, as well as to prepare for advanced study at a graduate institution.

Description of Major The undergraduate Drama major will be introduced to the total theatre experience, as well as its individual arts and crafts.

Theatre history, dramatic literature, playwriting, as well as acting, directing, technical production, scene design, lighting design, costume design, voice control, and stage movement are only some of the areas covered in classroom courses. Theory will be tested in the theatre laboratories—the stages and their shops. Drama majors are encouraged to express individual creative and interpretive impulses in courses, laboratory classes, and with the working crews and casts of productions. Advanced students will be urged to demonstrate abilities in independently organized, but faculty-supervised, projects in acting, playwriting, criticism, directing, and design.

A View of the Major It is recommended that Drama majors take a Physical Education *skill* course during each of the quarters in residence. The following courses, when available, are recommended: Modern Dance, Ballet, Jazz Dance, Tumbling, Gymnastics, Judo, Boxing, Wrestling, Fencing, Weight Training, Physical Conditioning, Exercise and Physical Control, or Swimming.

It is also recommended that the Drama major have at least a basic familiarity with other creative arts as well as the basic humanities. When practicable, the major should take course work in the following areas outside the major field of concentration: music, art, philosophy, American and English literature.

The difference between the B.A. degree and the B.S. degree is one of flexibility and concentration. The B.S. degree allows the substitution of specialized field courses for the usual College distribution and language requirements.

However, there are minimum requirements for both degrees, with sixty quarter hours to be taken in the major area. Thirty-two quarter hours are to include *Theatre History I* and *II*, *Stagecraft*, *Acting I*, *Dramatic Theory and Criticism*, *Directing I*, and *Practicum in Play Production*. Beyond these basic courses, a major selects and completes a minimum of twenty-eight quarter hours of advanced work within one of three tracks: Acting/Directing, Technical Theatre, or Playwriting/Dramatic Criticism/Theatre History.

The theatre represents the major public laboratory to the Drama major, a place where theory is put into practice. All majors are expected to work in production each quarter in residence and fulfill a variety of crew assignments in construction, painting, sound, lighting, sewing, and ticket selling, as well as crew assignments for the running of a show—wardrobe, makeup, props, scene shifting, ushering, and house managing. Whenever possible, majors are expected to serve as stage managers and assistant stage managers. Appearing in a production is not a substitute for crew work and, when reasonably possible, all those concentrating in a performance aspect should also participate in crew activities.

A few places in upperclass performance courses are kept available for freshmen students.

Minor in Drama

Students majoring in other departments may choose a minor in Drama to complement their academic majors or to assist them in developing career goals by taking eight courses (thirty-two quarter hours). Closely supervised by a Drama faculty adviser, students may follow programs of study that offer a generalized or a specialized program. Specialized areas are in performance, technical theatre/design, and drama literature and criticism.

Accreditation

Basic course work offered by this Department adheres to the suggested minimum requirements for a Drama degree as put forth by the American Theatre Association and enables the diligent student to prepare for the Graduate Placement Examination in Theatre.

Earth Sciences Department

Richard S. Naylor, Ph.D., *Associate Professor and Chairman*

Associate Professors

Richard H. Bailey, Ph.D.
 Bernard L. Gordon, M.S.
 William A. Newman, Ph.D.
 David L. Wilmarth, Ph.D.

Assistant Professors

Malcolm D. Hill, Ph.D.
 Peter S. Rosen, Ph.D.
 Martin E. Ross, Ph.D.

Professional Preparation

Aims The Department of Earth Sciences offers a degree program in geology as an in-depth study of a major area of the earth sciences, as well as courses in geology, oceanography, and astronomy, which are available to all students.

Description of Geology Major Geology is a broad-based science that deals with the study of the physical features, composition, history, and processes of the earth. The study of geology, however, also demands an understanding of the application of scientific knowledge to current problems and concerns. For example, the manufacture of an enormous number of products composed of metals and petroleum derivatives is a primary basis of the economy of our society. Understanding the origins of these natural resources and the ways in which to ensure their continued supply is, therefore, one of the major roles of today's geologists. Only a small portion of the earth has been studied in detail, leaving many unexplored frontiers for each new graduate in the field.

A View of the Major Since the study of geology utilizes principles of other physical sciences, students should complete basic courses in chemistry, physics, and mathematics along with Physical and Historical Geology during their first two years. After completing the introductory geology courses and one year of chemistry, every Geology major takes a three-course sequence—Descriptive Mineralogy, Optical Crystallography, and Optical Mineralogy—since a knowledge of minerals is fundamental to geological understanding. In addition to the required introductory and mineralogy courses, the student chooses a minimum of six (for the B.A. degree) or eight (for the B.S. degree) additional geology courses. There are also electives required in the areas of the humanities and social sciences.

Each student is assigned to an adviser in the Department. The adviser assists students in making appropriate course selections as their knowledge increases and special interests develop. Though not required, courses in petrology, structural geology, and paleontology are usually among the electives chosen by undergraduates.

During the junior and senior years, students may select undergraduate research as one of their elective courses. Under the supervision of a faculty member, a problem is selected, defined, and researched. These projects offer undergraduates the opportunity to go much more deeply into some aspect of geology that holds particular interest for them. Students who meet the college requirements for the honors program may also be invited to carry out an undergraduate research project.

In addition to its major curriculum, the Earth Sciences Department also offers a minor program in Geology.

Special Information

Field Trips Though much geology can be learned from textbooks and in the laboratory, a sound geological education must also include firsthand experience in the field and direct observation of geological phenomena. Whenever it is appropriate, field work on an individual or group basis will be part of courses.

Economics Department

Morris A. Horowitz, Ph.D., *Professor and Chairman*

Professors

Conrad P. Caligaris, Ph.D.
Harold M. Goldstein, Ph.D.
Daryl Hellman, Ph.D.
Irwin L. Herrnsstadt, Ph.D.
Sungwoo Kim, Ph.D.
Gustav Schachter, Ph.D.
Donald Shelby, Ph.D.

Associate Professors

Ernest M. DeCicco, Ph.D.
Pawan K. Sawhney, Ph.D.
Andrew Sum, M.A.

Assistant Professors

Philip Abbott, Ph.D.
Neil Alper, Ph.D.
David Feeny, Ph.D.
Sharda Gupta, Ph.D.
Francis Mulvey, Ph.D.
Gregory Wassall, Ph.D.

Instructors

Francis Carney, M.A.
Jay Chaubey, M.A.
Meenakshi Dalal, M.A.
Herbert Eskowitz, M.A.
Charles Harrington, M.A.
Edward Meehan, M.A.
James McKinsey, M.A.
Ghulam Qadir, M.A.
Abu Selimuddin, M.A.

Professional Preparation

Aims The Economics program offers students the opportunity to obtain a better understanding of how our economy and other economies function; to prepare themselves for graduate study in economics; and to develop specialties that may qualify them to work as economists.

Description of Major Economics is the study of ways in which scarce resources, including human resources, are deployed to satisfy the material wants of individuals and society. Economists analyze the factors that determine the success or failure of this process.

Macroeconomics, concerned with the overall economy, deals with such problems as inflation, unemployment, growth and instability, and government monetary, fiscal, and regulatory policies. Microeconomics is concerned with the economic behavior of individuals, households, firms, and industries. It assesses the economic effects of racism, sexism, pollution, and environmental damage and analyzes the economic aspects of natural resources, poverty, health, income distribution, trade unions, and collective bargaining.

Graduates are employed by businesses in such activities as industrial relations, planning and forecasting, determining plant locations, and making financial studies. They may become expert in analyzing consumer demand and developing and marketing new products. They may conduct research, teach, or provide specialized consulting services. In addition, federal, state, local governments, and trade unions are important sources of jobs for economists.

A graduate with an Economics major, or with a number of advanced courses, may be better prepared not only for graduate programs in economics but for entry into schools of law and business, as well.

A View of the Major There is considerable flexibility in the Economics program to enable students to concentrate in areas of personal interest. A student expecting to major in the field should take the problem-oriented Principles of Economics in the freshman or sophomore year to discover the range of insights economics can offer in analyzing and solving a variety of problems. Upper-division courses apply theory to an in-depth study of a specific area of the field.

Other courses for the major include two quarters each of fundamentals of mathematics, economic statistics, and economic theory. In addition, the Department offers electives in all areas of economics, honors courses, reading courses, and a senior seminar.

The courses listed above are required for either the Bachelor of Arts or Bachelor of Science degree. However, the B.A. follows the liberal arts tradition in its distribution and language requirements — the Department of Economics requires other social science courses as well, plus six economics electives. The B.S. is a professional degree. In addition to social science electives, it requires ten economics electives and one course in quantitative methods.

The Department courses offer training in economic theory, money and banking, public finance, international trade, growth and development, industrial organization, comparative economic systems, economic history, environmental economics, economics of crime, urban problems, labor markets, collective bargaining, human resources, poverty and discrimination, and medical economics. In addition, tool courses, such as statistics, mathematical economics, econometrics, and quantitative methods are available. Other electives and readings courses permit a student to study an area in depth.

Description of Minor The Department also offers a minor consisting of four required courses and four electives, which are selected in consultation with a faculty adviser. Any course taken outside the Department of Economics to satisfy these minor elective requirements must be approved by a faculty adviser in the Department.

English Department

Kinley E. Roby, Ph.D., *Professor and Acting Chairperson*

Professors

Richard Astro, Ph.D.
 Samuel J. Bernstein, Ph.D.
 Robert J. Blanch, Ph.D.
 Earl N. Harbert, Ph.D.
 Victor E. Howes, Ph.D.
 M. X. Lesser, Ph.D.
 Samuel F. Morse, Ph.D.
 James E. Nagel, Ph.D.
 Jane A. Nelson, Ph.D.
 Herbert L. Sussman, Ph.D.
 Arthur J. Weitzman, Ph.D.
 Paul C. Wermuth, Ph.D.

Associate Professors

Francis C. Blessington, Ph.D.
 Timothy R. Donovan, Ph.D.
 Irene Fairley, Ph.D.
 Daniel Golden, Ph.D. (Visiting)
 Gary Goshgarian, Ph.D.
 Gerald R. Griffin, Ph.D.
 Guy Rotella, Ph.D.
 Lloyd A. Skiffington, Ph.D.
 Joseph E. Westlund, Ph.D.

Assistant Professors

Richard Bullock, Ph.D.
 Helen Loeb, Ph.D.
 Ruth MacDonald, Ph.D.
 Stuart S. Peterfreund, Ph.D.

Instructors

Ben Bennani, M.A.
 Nadia Coiner, M.A.
 Elizabeth Deis, M.A.
 Linda Feldmeier, Ph.D.
 Lowell Frye, M.A.
 Jeannie Judge, M.A.
 Paul Kreuzer, M.A.
 Lynn Layton, Ph.D.
 Joseph Litvak, M.A.
 Eileen Margerum, M.A.
 Lea Masiello, M.A.
 John Nania, M.A.
 Michael Pownall, M.A.
 Sarah S. Smith, Ph.D.
 Michele Souda, M.A.

Lecturer

Joseph B. DeRoche, M.F.A.

Professional Preparation

Aims The English Department curriculum is diverse in its aims and flexible in its design. For the general University community, the curriculum offers possibilities in creative, expository, and technical writing; linguistics; and American, English, and foreign literature. For the preprofessional student—in law, medicine, business, or engineering—it offers a broad intellectual and cultural frame for specialist concerns. For the minor in English, it offers the possibility of concentration in literature or writing to supplement the major concerns of other disciplines. For the major in English, it offers the opportunity to prepare for careers in teaching and research, advertising and publishing, radio and television—indeed, any field in which communication and judgment go hand in hand.

At a time when the price of imprecision in language is more than simple misunderstanding and the cost of changing values more than personal uncertainty, the study of literature provides "a momentary stay against confusion." It deals with the hard edge of being, an insight into the ways of men and women, at once clear and complex. In fact, the very structure of literature gives shape and meaning to the often formless experiences of life. And it does so with grace and force. Put another way, literature "tells it like it is," not statistically, not abstractly, but with the details of fully realized people in accessible worlds, in "imaginary gardens with real toads in them."

Description of Major There is flexibility enough in the curriculum requirements and its details to accommodate the pace and interest of a wide range of students. Members of the Department are available throughout the year to help and advise students, but the critical choice rests essentially



with the student. So, too, is the choice within areas. The American literature requirement, for example, may be met by successfully completing courses from among such recent offerings as Major American Novels, The New England Renaissance, American Realism, and American Romanticism. To this area, as to others, the Department regularly adds new courses and, hence, even more options.

A View of the Major The curriculum for the major in English allows the student to take a wide variety of courses while maintaining a strong background in the history of British and American literature. After completing the Freshman requirement, the English major takes survey courses, area courses (in language or writing, British literature, American literature, major figure, genre), other electives, and, finally, a Junior-Senior Seminar as the culmination of study. A student has the opportunity to study science fiction, Kurt Vonnegut, topics in film, or children's literature, as well as Shakespeare, early American literature, Romantic poetry, and topics in literary criticism. In an effort to be responsive to the individual interests and academic needs of a particular student, independent study also may be arranged with an English instructor.

A View of the Minor Students who would like to minor in English may choose either the minor in literature or the minor in writing. Within each minor, the student may select an individual course of study with the help of an English Department adviser. In the minor in writing, for example, the student may focus on creative, expository, or technical writing.

History Department

Raymond H. Robinson, Ph.D., *Professor and Chairman*

Professors

Philip N. Backstrom, Ph.D.
William M. Fowler, Jr., Ph.D.
Donald M. Jacobs, Ph.D.
John D. Post, Ph.D.

Assistant Professors

Laura L. Frader, Ph.D.
Gerald H. Herman, M.A.
Martin R. Ring, Ph.D.

Associate Professors

Charmarie J. Blaisdell, Ph.D.
Ballard C. Campbell, Ph.D.
Norbert L. Fullington, Ph.D.
LaVerne J. Kuhnke, Ph.D.
Clay McShane, Ph.D.
Stanley R. Stenbridge, Ph.D.

Aims History's concern with man in his diverse and complex past provides excellent opportunity for the development of greater understanding and appreciation of today's culture and civilization. Traditionally, history has been a major of great appeal to men and women desiring a broad base before they embark on careers in business, law, journalism, and government.

Other majors know that they want to work more directly in history. Some want to teach in public schools. They may elect education courses leading

to the opportunity to obtain state certification. (Those desiring jobs in private secondary schools need not be certified by state authorities.) Teaching positions in colleges and universities require master's, and increasingly doctor's, degrees. An undergraduate major in History facilitates entrance to graduate programs in the field. Ordinarily, college and university history teachers spend part of their time in research and writing.

Not all professional historians teach and write. Many find pleasure and profit working in public archives, private historical societies, museums, and restoration projects. Their careers serve not only other professional historians but a larger public as well.

Description of Major For majors of such diverse interests and ambitions, curricula must combine sensible structure with flexibility. Majors in History at Northeastern may qualify for either a Bachelor of Arts or a Bachelor of Science degree. Since the B.A. requires a foreign language, it appeals to prospective candidates for graduate school where reading knowledge of foreign languages is often necessary; the B.S. is designed for students desiring greater specialization in history and a social science orientation.

Candidates for both degrees are required to take the surveys in Western Civilization and American History, and The Historian's Craft, which focuses on methods, problems, and philosophies of historians. Beyond the basic courses is a wide range of offerings covering the political, economic, social, and cultural history of man in diverse times and places.

A View of the Major To ensure a broad program of study, the College of Arts and Sciences requires that students choose courses offered by departments outside the area of the major. Because history is classified as a social science, History majors must complete forty quarter hours of work in the humanities and science/mathematics (see page 36). Sixty quarter hours of history are required for the B.A. degree; seventy-two quarter hours for the B.S. degree.

The history requirements are broken into groups: Group A (Ancient, Medieval, and Early Modern Europe); Group B (Modern Europe); Group C (British North American Colonies and the United States); and Group D (Other Areas or Regions). A minimum of two courses (eight quarter hours) must be elected from each group.

Majors are also urged to avoid overspecialization at the undergraduate level. Though there are no maximum limits on the amount of history that may be taken, the Department advises broad course selection as the best policy for its majors. All majors are assigned to departmental advisers who offer counsel about the program. Students are urged to seek advice about history electives, about other electives, and about the honors program.

All qualified History majors are urged to consider the honors program in History. Those accepted write honors theses under the direction of members of the Department. Students ordinarily register for honors courses in their last three quarters of enrollment, except for the summer quarter when honors courses are not usually offered.

The Minor Students interested in a minor in history should consult the Department of History for information.

Human Services

An interdisciplinary major involving the College of Arts and Sciences and the Boston-Bouvé College of Human Development Professions

Human Services

Susan E. Massenzio, *Program Director*

Advisers

Dorothy Bickling, *Counselor Education*

Wendell R. Brown, *Foundations of Education*

John D. Herzog, *Foundations of Education*

Wilfred Holton, *Sociology/Anthropology*

Ronald J. McAllister, *Sociology/Anthropology*

Alvin Zalinger, *Foundations of Education*

Harold S. Zamansky, *Psychology*

Fieldwork Supervisor

Natalie H. Riffin, *Human Services*

Human Services

Aims This major offers students the opportunity to prepare themselves for possible careers in one of the areas broadly defined as "human services." The program is interdisciplinary. The Human Services curriculum allows students to obtain fundamental attitudes, knowledge, and skills that can lead to meaningful careers in the helping professions as well as to graduate education in a variety of fields.

Students who major in Human Services through the College of Arts and Sciences may prepare themselves to perform a variety of functions in public and private agencies. Through course work, two quarters of fieldwork experience, and possible co-op jobs, students have the opportunity to explore such areas as: casework services in social service and welfare agencies; therapeutic treatment programs in mental health settings; supportive counseling in community health centers; rehabilitation counseling services; sheltered workshops; parole counseling; court liaison in programs for delinquent youth; staff work in half-way houses, penal institutions, and drug treatment centers; supportive counseling for the mentally retarded; community organizing; services for the aging; administration in human services agencies; and social program research and evaluation.

Description of the Major The Human Services program offers a continuing advisory system to help students make the best use of their early course selections and to guide them to appropriate upper-level courses.

College Requirements. Degree requirements differ for each participating college. Refer to pages 35 to 36 for requirements in the College of Arts and Sciences and to page 85 for requirements in the Boston-Bouvé College of Human Development Professions. Degree candidates in Human Services in Arts and Sciences are required to meet the modern language and distribution requirements of the College (see page 36). Students in Arts and Sciences may take a five-year Cooperative Education Program or a four-year full-time program.

There are five basic aspects to the program as follows:

1. **Prerequisite Courses.** Prescribed courses in sociology, psychology, government, economics, and human services are required, for a total of six courses.

2. **Core Courses.** Nine courses in such areas as statistics, research methods, group process, organizations, personality, intervention strategies, and a senior seminar are required as "core" courses.
3. **Specified Electives.** Three courses in the areas of Afro-American Studies, special education, and/or poverty must be selected from a list of recommended options.
4. **Specialization.** Each student must take a five-course specialization developed in conjunction with an adviser. Typically, these specializations are in one of three areas: administrative, community, and clinical. Specific course choices are designed to complement the individual's interests and goals.
5. **Fieldwork.** Human Services students are required to fulfill two fieldwork placements during the last two years of their program. Each placement consists of 150 hours on site. The type of placement varies according to the student's interest. In the past, students have found placements in community centers, nursing homes, vocational workshops, state and federal agencies for children, and recreational facilities. These experiences are supervised by University staff to maximize the student's learning opportunity.

A View of the Major The Human Services major offers students the opportunity to obtain useful values and basic knowledge relating to various human services fields. Courses introducing some basic skills can help them to understand and work with a variety of helping services.

Human Services students at Northeastern have been very active in their major and helpful to each other. The Human Services Student Organization combines social and career-related activities, which in the past have included open houses, day-long conferences, and weekend retreats. A quarterly *Human Services Newsletter* is published by students and faculty.

For specific details on degree requirements, students should consult their Human Services advisers or the Program Director in 202 Lake Hall.

Journalism Department

LaRue W. Gilleland, M.A., *Professor and Chairman*

Associate Professors

William Kirtz, M.S.

George A. Speers, M.Ed., M.S.

Assistant Professor

Patricia Hastings, Ph.D.

Professional Preparation

Aims In this modern world, it is evident that society relies increasingly on the mass media to keep abreast of rapidly changing conditions. It is the role of the journalist to observe, understand, analyze, explain, report, and interpret, as well as to provide leadership in ideas and information through the mass media's many outlets.

Description of Major Many opportunities exist in the broad field of journalism. For example, a Journalism major may be qualified for openings with daily and weekly newspapers, news departments of radio and television stations, news bureaus, wire services, general and specialized magazines, industrial journalism, public relations, publicity, and many other fields not directly related to mass media. A journalism education actually offers an excellent background for many nonmedia fields where the communication process is important.

A View of the Major A journalist should have a broad background of liberal arts courses on the undergraduate level, a need that most university journalism programs have long recognized. The student should have professional courses, but not to the point of overspecialization.

The generally accepted formula for the bachelor's degree in Journalism is a combination of approximately 70 percent arts and sciences courses and 30 percent professional courses. This combination is preferred by most graduate schools of journalism, as well as leaders in the field.

In the freshman year at Northeastern, all courses are in the arts and sciences. In each of the upperclass years the ideal arrangement is to take one or two journalism course each quarter, with additional course work in the humanities, social sciences, sciences, and mathematics.

Because journalism skills can be better expanded and understood with the aid of a laboratory, upperclass Journalism majors are encouraged to participate in the Cooperative Plan of Education. Co-op jobs with newspapers, radio and television stations, news bureaus, and public relations offices help provide a laboratory experience, which is important in preparing students for the world of mass communications. In addition, such experience offers the student a major advantage if he or she decides to seek admission to a graduate program in journalism.

Journalism majors enrolled in the B.A. program take eight quarter hours in each of the following: U.S. History, other history electives, English literature, English electives, political science, and economics. General electives of approximately forty quarter hours, or ten courses, are also required. (See page 36 for distribution and foreign language requirements.) Thirty-two quarter hours are required in the Fundamentals of Newswriting, Techniques of Journalism, History of the Principles of Journalism, and Press and Society.

Students selecting the B.S. program take the aforementioned courses but also must include twenty-four quarter hours in mathematics, physics, biology, or other science courses. In this case, there is no foreign language requirement.



Linguistics

An interdepartmental major.

François Grosjean, Ph.D. and Doctorat d'Etat, *Associate Professor and Coordinator, Psychology*

Professor

Harlan Lane, Ph.D. and Doctorat d'Etat, *Psychology*

Associate Professors

Irene Fairley, Ph.D., *English*

Michael Lipton, Ph.D., *Philosophy and Religion*

Joanne Miller, Ph.D., *Psychology*

Assistant Professors

Paul Dredge, Ph.D., *Sociology/Anthropology*

Ross Hall, Ph.D., *Modern Languages*

Judy Shepard-Kegl, M.A., *Psychology*

Professional Preparation

Aims Linguistics is concerned with every aspect of language: for instance, how children learn to speak, how we understand and produce language, how language barriers keep people apart and how language ties bring them together, how language is structured and how it is represented in the brain, why some people are better at acquiring a second language than others, and how sign languages are different from spoken languages. A major in linguistics can be a useful first step in becoming, for instance, a linguist, an expert on child language, a teacher of a foreign language or of English as a second language, an interpreter, or even an expert in artificial intelligence. But above all, specializing in linguistics allows one to have an insight into language itself—a highly complex aspect of our everyday life that we take for granted far too readily.

Description of Major The major in linguistics is an interdepartmental enterprise. Five departments (English, Modern Languages, Philosophy and Religion, Psychology, and Sociology/Anthropology) collaborate to offer a comprehensive program that makes use of the vast resources and talent that exist at Northeastern University in the field of linguistics. The major reflects the current research of such diverse people as linguists, sociologists, psychologists, language educators, and teachers of second languages. It is administered by a coordinator who is a member of the Psychology Department.

The major offers students a systematic introduction to modern linguistics and is broad enough to meet the needs of students interested in:

- general linguistics (phonetics and phonology, semantics, syntax, bilingualism, historical linguistics, philosophy of language, language and culture, American Sign Language);
- experimental linguistics (language and cognition, child language, neurolinguistics, psycholinguistics); and
- linguistics applied to language-related work (language teaching, language testing, language teaching materials, interpreting, literary analysis).

A View of the Major Students enrolled in the major can obtain either a Bachelor of Arts or a Bachelor of Science degree. These two degrees are in every way identical except that the second language requirement can be met with American Sign Language in the B.S. degree but not in the B.A. degree.

The major includes freshman and distribution requirements in sciences, mathematics, social sciences, and the humanities. The general requirements of the major include six basic courses from the main areas of linguistics: general linguistics, psycholinguistics, sociolinguistics, and applied linguistics. Students also take five additional courses in the area of their choice. These courses include, among others, Bilingualism, Child Language, Philosophy of Language, Linguistics of American Sign Language, Neurolinguistics, Transformational Grammar, Body Language, Animal Communication, Introduction to Semantics, and Symbolic Logic.

All students also take a laboratory course in which they are introduced to language research in a laboratory environment. Two advanced seminars are required as is a practicum that can take the form of fieldwork, interpreting, language teaching, or a directed study. The practicum is supervised by a faculty member who advises the student and monitors his/her progress. Advanced knowledge of a second language—spoken or sign—is required, by either taking appropriate courses or demonstrating proficiency in that language.

The program is suitable for those students interested in teaching American Sign Language. They may wish to concentrate on the applied linguistics of sign language while working on their bachelor's degree. This concentration enables students to acquire the background and the skills necessary to become professional teachers of sign language and helps them prepare for the sign language instructor certification.

Throughout the course of study, students meet regularly with an adviser who helps them plan their course work and advises them on all aspects of the major.

Research The students enrolled in a directed-study course and in the laboratory course will take advantage of the Psychology Department's two language laboratories, which contain audio and video recording facilities and a computer for stimulus preparation, data gathering, and statistical analysis. They will work with graduate students, research assistants, and faculty on ongoing projects related to the perception and production of spoken and sign languages.

A brochure describing the linguistics major, as well as additional information, can be obtained from Dr. F. Grosjean, Department of Psychology, 235 Nightingale Hall.

Mathematics Department

Maurice E. Gilmore, Ph.D., *Professor and Chairman*

Professors

Samuel J. Blank, Ph.D.
 Bohumil Cenk, Sc.D.
 David I. Epstein, Ph.D.
 Holland C. Filgo, Ph.D.
 Alberto R. Galmarino, Ph.D.
 Arshag B. Hajian, Ph.D.
 Nancy Kopell, Ph.D.
 Richard A. Rasala, Ph.D.
 Jayant Shah, Ph.D.
 Gabriel Stolzenberg, Ph.D.
 Harold L. Stubbs, Ph.D.,

*Robert G. Shore Professor of
 Mathematics*
 Jack Warga, Ph.D.

Richard Porter, Ph.D.
 Mark Ramras, Ph.D.
 Betty Salzberg, Ph.D.
 Thomas O. Sherman, Ph.D.
 Victor R. Staknis, Ph.D.

Assistant Professors

John J. Cade, Ph.D.
 Robert Case, Ph.D.
 Agnes H. Chan, Ph.D.
 Margaret B. Cozzens, Ph.D.
 Terence J. Gaffney, Ph.D.
 Laurence S. Gillick, Ph.D.
 J. Joseph Guay, Ph.D.
 Samuel Gutmann, Ph.D.
 Paul Holley, M.S.
 Solomon M. Jekel, Ph.D.
 Donald King, Ph.D.
 Miroslav I. Klun, Ph.D.
 Robert McOwen, Ph.D.
 Michael Perloff, Ph.D.
 Vera K. Proulx, Ph.D.
 Mark Reynolds, M.S.
 Catherine Roche, Ph.D.
 William K. Stevens, Ph.D.
 Mark Stewart, Ph.D.
 Gordana G. Todorov, Ph.D.
 Michael Weiss, Ph.D.

Associate Professors

Shirley A. Blackett, M.Ed.
 Mark Bridger, Ph.D.
 Gail Carpenter, Ph.D.
 John Casey, B.A.
 Bruce Claflin, M.S.
 Ellen H. Dunlap, B.A.
 Harriet Fell, Ph.D.
 John Frampton, Ph.D.
 Samuel M. Giveen, M.A.
 Eugene Gover, Ph.D.
 Anthony Iarrobino, Ph.D.
 Nishan Krikorian, Ph.D.

Professional Preparation

Aims The Department offers interested students the opportunity to develop and expand their abilities in this exact science, one of the oldest and most basic of all the sciences.

Description of Major The Department offers three programs of studies, two in mathematics and one in computer science. One of the programs in mathematics leads to a Bachelor of Arts degree and requires a minimum of thirteen mathematics courses. Students in the Bachelor of Arts program also must complete a foreign language requirement. Because mathematics-related material is more often written in French, German, Italian, or Russian, one of these languages is recommended. The Department also offers a Bachelor of Science degree program, which requires a minimum of sixteen mathematics courses but does not require the study of a foreign language. Bachelor of Science candidates may opt to pursue a degree in Computer Science, which is explained on page 63.

A View of the Major All students must take a basic sequence of mathematics courses, which, as a rule, should be completed by the end of the sophomore year. The sequence offers students the opportunity to acquire a working knowledge of the calculus of one and several variables, differential equations, some linear algebra, and numerical methods. With respect

to the latter, although a computer programming course is not required, students will be encouraged and eventually expected to learn the basic programming skills necessary for numerical solutions of complex problems. Mathematical computer science courses are offered for interested first- and second-year students.

A transition from the basic sequence to more advanced parts of the curriculum is provided by Analysis I-II and Advanced Linear Algebra I. These courses are prerequisites for many advanced courses in applied analysis, complex analysis, topology, and foundations. In computer science, the courses in computer organization and information structures are the link to more advanced subjects.

As a rule, students planning to take a substantial number of mathematics courses (e.g., two per quarter) should take Analysis I-II and Advanced Linear Algebra I in the middle year. Students may wish to take a prerequisite for more advanced courses in algebra and/or one that includes linear, nonlinear, and dynamic programming. Courses in probability, statistics, and numerical analysis may also be taken directly after the basic sequence.

Courses in computer science range from freshman to graduate level, including group projects and individual projects directed by faculty. Here, possible specializations include artificial intelligence, computer networks, combinatorics, graph theory, and software development.

In the fourth and fifth years, students who have completed Analysis I-II and Advanced Linear Algebra I will have a variety of mathematics electives from which to choose. Some will wish to concentrate in one area such as algebra, analysis, topology, computer science, or applied mathematics, while others may prefer a more diversified program. Many of the upper-level courses, such as probability and complex analysis, are in the area of "pure" and "applied" mathematics; others, such as algebra and numerical analysis, are more specialized. Fourth- and fifth-year students may wish to plan with their adviser a program of directed study and/or take first- and second-year graduate courses and seminars.

Computer Science Degree

The College of Arts and Sciences (through the Mathematics Department) and the College of Engineering jointly award a Bachelor of Science degree in Computer Science. Students may enroll in either college. Those entering the program from the "mathematics side" of this common effort will be expected to choose more mathematically oriented courses in those parts of the curriculum that present options. The Bachelor of Science degree in Computer Science requires at least eight courses in mathematics and seventeen courses in computer science and no foreign language.

Computer Science Minor

For students who major in other areas but are interested in learning about computers and computer programming, the Department offers a minor in Computer Science. The program contains four basic courses and a wide range of electives to accommodate individual needs.

To qualify for this minor, a student must take twenty-eight quarter hours, including the four basic courses and three advanced mathematics and computer science courses listed by the Department.

Modern Languages Department

Holbrook Robinson, Ph.D., *Associate Professor and Chairman*

Professor

Samuel Jaramillo, Ph.D.

Associate Professors

Israel Aluf, Ph.D.

Lillian Bulwa, Ph.D.

Nazzareno F. Cedrone, Ph.D.

Benedetto Fabrizi, D.M.L.

Juliette M. Gilman, Ph.D.

Charles E. Kitchin, M.A.

Bonnie S. McSorley, Ph.D.

Constance H. Rose, Ph.D.

Philip H. Stephan, Ph.D.

Assistant Professors

Walter Gershuny, Ph.D.

Ross Hall, Ph.D.

Robert B. Modee, M.A.

Stephen A. Sadow, Ph.D.

John Spiegel, M.A.

Mary-Anne Vetterling, Ph.D.

Professional Preparation

Aims The study of Modern Languages can be of value to all students, regardless of their major fields of interest. In the complex and rapid pace of modern life, there is a need for increased communication between varied and often divergent cultures, even those within the narrow confines of your own community. To better understand and appreciate these cultures, it is very important to know the ways in which the members of the culture think.

As the principal means of communication, language frequently offers the key to understanding. Thus, language study may serve to help you achieve a more cosmopolitan, open-minded, and sensitive view of the world.

The Department offers opportunities for background preparation for students interested in elementary, secondary school, or college teaching; international business relations; government service; journalism; library science; world affairs; travel; and community service (especially in Spanish-speaking areas). Those who wish to teach in college must plan on graduate study.

Description of Major Available in French, German, Italian, Russian, or Spanish, the major in Modern Languages normally requires advanced courses in two languages. The freshman year usually is considered a year to establish the basic foundation upon which the major will be formed. It should be utilized to fulfill as many general requirements as possible so that during the upperclass years more time can be devoted to the major discipline.

Normally the study of a second (minor) language begins in the second year. However, in exceptional cases, this pattern may be altered to permit students to begin their second language in the freshman year or, perhaps, postpone it to a later year. The Modern Language major should plan to take at least two language electives per quarter from the beginning of the second year. Again, of course, this pattern may be varied to fit the needs of the individual student.

It should be noted that the requirements indicated here for the major and minor languages are *minimum* requirements. When at all possible, a student is strongly encouraged to go beyond them, and even, perhaps, to pursue a third language.

The Department is currently redesigning its major and is planning new programs as well. Students are urged to consult their Department advisers for further information concerning curriculum changes.

The Major The Department offers a choice of either a Bachelor of Arts or a Bachelor of Science degree. For either degree, the student must select a major as well as a minor language from French, German, Italian, Russian, or Spanish. Both degrees require Freshman English.

The B.A. is, of course, the traditional degree for this discipline. Candidates for the B.A. must satisfy the College distribution requirements for graduation and, in addition, must meet the departmental requirements in their major. These requirements are eight quarter hours in Western Civilization, eight additional quarter hours in history (any other history courses relevant to the major are acceptable), eight quarter hours of Survey of English Literature, a minimum of thirty-two quarter hours of advanced work in the major language, and eight quarter hours of advanced work in the minor language. Advanced work may be defined as any course beyond the intermediate level of the language.

The Bachelor of Science degree in Modern Languages differs from the B.A. primarily in its emphasis. Whereas the B.A. requires that the student satisfy the distribution requirements of the College of Arts and Sciences, the B.S. waives these requirements in favor of a much more concentrated program in the major area.

In addition, the candidate for the B.S. degree must complete eight quarter hours of Composition and Conversation in the major language and eight quarter hours of Composition and Conversation in the minor language. Candidates then must complete forty additional quarter hours of advanced work in the major language and sixteen additional quarter credits of advanced work in the minor.

The Minor For students interested in acquiring proficiency in one foreign language as an adjunct to their major, the Department offers a minor in Modern Languages, open to students of all colleges. The details of the requirements for a minor vary slightly from language to language, but, in all cases, the student is required to take a total of six courses. Generally, two composition and conversation courses, a civilization course, and an introductory course in literature are required. The remaining courses are free electives drawn from advanced courses offered by the Department.

Students are urged to consult the Department adviser for further information about the minor.

Additional Information In the basic language courses, attendance in the language laboratory is required for two half-hour sessions per week. The facilities of the language laboratory are also available on an optional basis for advanced work. The Department lounge is available to Modern Language students.

Music Department

Herbert H. Silverman, Ed.D., *Professor and Acting Chairman*

Professors

Roland L. Nadeau, M.M.

Leo Snyder, M.M.

Instructors

Matthew McGarrell, M.M.

Linda C. Ott, M.M.

Associate Professors

Reginald Haché, A.D.

Joshua R. Jacobson, D.M.A.

David Sonnenschein, D.M.A.

Aims The Department of Music, as a minor, offers a comprehensive number of courses for students with an interest in, or a desire to learn about, music. In addition, the Department also serves the musical and cultural needs of the University and its various colleges, providing a wide range of musical experiences for students and the University community and emphasizing the aesthetic aspects of intelligent listening to, and learning about, our musical heritage.

Department of Music courses fall within several categories: Basic Music Theory, Music Education, Historical Periods and National Styles, Individual Composers and Their Music, The Forms of Music, Basic Appreciation (overview), and Functional Performance.

In addition, faculty direct student performance organizations, such as the Early Music Players, the N.U. Choral Society, the N.U. Symphony Orchestra, and the N.U. Bands.

Students from these performance groups, as well as the music faculty and artists from the community at large, participate in a program of over sixty concerts per year, most of which are free and open to the public.



Philosophy and Religion Department

William J. DeAngelis, Ph.D., *Associate Professor and Acting
Chairman, 1981–82*

Professors

Walter L. Fogg, Ph.D.
Pavel Kovaly, Ph.D., C.Sc.

Assistant Professors

Bart K. Gruzalski, Ph.D.
Susan M. Setta, Ph.D.

Associate Professors

Edward A. Hacker, Ph.D.
Michael R. Lipton, Ph.D.,
*Chairman (on sabbatical
1981–1982)*
Stephen L. Nathanson, Ph.D.
Gordon E. Pruett, Ph.D.
Joseph H. Wellbank, Ph.D.

Professional Preparation

Aims Philosophy deals with a wide range of questions and issues generated by various aspects of human experience, by the beliefs and theories people hold, and by the practical problems human beings confront. Philosophy includes both questions and theories related to art, religion, morality, society, and natural and social sciences. Because of the breadth of its concerns, the study of philosophy provides a unique opportunity for students to examine their beliefs in many areas through critical reflection.

Through readings, discussion, and writing, philosophy students can encounter and examine questions concerning the nature and validity of religious beliefs, moral judgments, and scientific theories, as well as questions of values and social policy in such areas as law, medicine, and technology. In all these areas, analysis of issues and evaluation of arguments provide an opportunity to understand diverse claims to knowledge and areas of controversy.

The program includes courses that may help strengthen the student's work in other areas and provide an understanding of the methods and traditions of philosophical and religious thought. A major in Philosophy can also help a student to acquire a broad background in the humanities and to sharpen his or her critical abilities in preparation for graduate or professional study in many areas. Indeed, former Philosophy majors can be found in the most diverse of professional careers. For students majoring in another discipline, the Department offers a minor program, which can be a valuable supplement to most fields.

The program in Religion offers students the opportunity to acquire an understanding of religious experience, both as an individual response and within its social, historical, literary, and political context. Specific religions (Christian, Jewish, Hindu, etc.) are studied as well as the mythical and mystical dimensions of religious experience in general. The program strives to clarify the relation between the religious experience and other facets of human life that are the concern of both the liberal arts and the professions. Although a major is not offered in Religion, the program attempts to provide a basic introduction to religious studies. Both introductory and intermediate level courses are offered.

Description of Major Northeastern's program for a Philosophy major is designed to offer students a balanced understanding of the nature of philosophy and particular philosophical problems that arise in the various arts

and sciences. A maximum number of electives has been provided so that students may choose in accordance with their own backgrounds and interests. Students may pursue either a five-year cooperative or a four-year full-time, course of study.

Although the departmental requirements for the B.A. degree are the same as those for the B.S., students taking the B.A. must meet the language and distribution requirements set by the College. All degree candidates in Philosophy must take at least eight quarter hours in English and fifty-two quarter hours in the Department and must meet the following specific requirements:

- A. Classical Greek Philosophy *and* Modern Philosophy
- B. Introduction to Logic *OR* Symbolic Logic (the Department emphatically recommends that students contemplating graduate studies in Philosophy take Symbolic Logic)
- C. Theory of Knowledge *OR* Metaphysics *OR* Moral Philosophy and
- D. At least one seminar
- E. Thirty-two quarter hours of Philosophy electives, to be selected after consultation with the student's departmental adviser

Description of Minor To attempt to meet the needs of students who are majoring in other areas but have a special interest in Philosophy, the Department offers a minor in Philosophy. The program contains an essential core of courses, as well as a great range of electives to accommodate individual interests.

Specific requirements:

- A. an introduction to philosophy course
- B. either Classical Greek Philosophy *OR* Modern Philosophy
- C. either Introductory Logic *OR* Symbolic Logic
- D. either Moral Philosophy *OR* Theory of Knowledge *OR* Metaphysics *OR* Philosophy of Mind
- E. Three electives in Philosophy to bring the total number of quarter hours in Philosophy to twenty-eight

Physics Department

Robert P. Lowndes, Ph.D., *Professor and Acting Chairman*

Professors

Ronald Aaron, Ph.D.
 Petros N. Argires, Ph.D.
 Richard L. Arnowitt, Ph.D.
 Alan H. Cromer, Ph.D.
 William L. Faissler, Ph.D.
 David A. Garelick, Ph.D.
 Marvin W. Gettner, Ph.D.
 Michael J. Glaubman, Ph.D.
 Hyman Goldberg, Ph.D.
 Walter Hauser, Ph.D.
 Giovanni Lanza, Ph.D.
 Bertram J. Malenka, Ph.D.
 Pran Nath, Ph.D.
 J. Edward Neighbor, Ph.D.
 Clive H. Perry, Ph.D.
 Eugene J. Saletan, Ph.D.
 Carl A. Shiffman, Ph.D.
 Jeffrey B. Sokoloff, Ph.D.
 Yogendra N. Srivastava, Ph.D.
 Michael T. Vaughn, Ph.D.
 Eberhard von Goeler, Ph.D.
 Roy Weinstein, Ph.D.
 Allan Widom, Ph.D.
 Fa Yueh Wu, Ph.D.

Associate Professors

Arun Bansil, Ph.D.
 Robert S. Markiewicz, Ph.D.
 Giulia Pancheri-Srivastava, Ph.D.
 David L. Waldorf, Ph.D. (Visiting)
 Arthur W. Winston, Ph.D.
 (Visiting)

Assistant Professors

Laszlo Baksay, Ph.D.
 William N. Celmaster, Ph.D.
 John V. Chalupa, Ph.D.
 Jorge V. José, Ph.D.
 Marie E. Machacek, Ph.D.
 Stephen McKnight, Ph.D.

Professional Preparation

Aims Physics is concerned with the fundamental principles that govern natural phenomena, ranging in scale from collisions of subatomic particles, through the behavior of solids and liquids, to exploding stars and colliding galaxies. Understanding these principles can help us understand basic chemical and biological processes, as well as the operation of engines, solid-state electronic devices, lasers, and other tools of modern civilization. The Physics Department offers undergraduate courses at four levels:

- 1) descriptive courses intended primarily for nonscience majors with limited mathematical background;
- 2) general survey courses intended for students in scientific and engineering fields;
- 3) advanced courses focusing on particular areas of physics and intended mainly, but not exclusively, for Physics majors; and
- 4) highly advanced courses intended mainly, but not exclusively, for graduate students in Physics.

Description of Major Students who major in Physics have the opportunity to prepare for a wide variety of careers. In addition to work in industrial and government laboratories in areas of applied physics, students who have mastered the fundamental principles emphasized in a physics education may find opportunities in allied fields, such as biophysics, geophysics, medical and radiation physics, and various branches of engineering.

A student majoring in Physics can follow either a four-year full-time program or a five-year co-op program. Many graduates have gone on to earn advanced degrees in physics and related fields.

A View of the Major Physics majors may study for either the Bachelor of Arts or Bachelor of Science degree.

Beyond the basic first- and second-year survey courses in physics and mathematics, B.A. candidates are required to pass three lecture and three laboratory courses in physics and one course in mathematics. The College requirements in English, modern language, humanities, and social science must also be satisfied. This program is extremely flexible and allows the B.A. Physics major to pursue other interests in depth.

Candidates for the B.S. must pass seven lecture and three laboratory courses in physics, two advanced courses in mathematics, and five technical electives (courses in science or engineering) beyond the basic physics and mathematics courses. The B.S. program is most appropriate for those students who wish to pursue graduate study in Physics.

The first-year program for all Physics majors includes a three-quarter physics course common to all science and math majors and a three-quarter mathematics course. The remaining two courses each quarter can be chosen from a wide range of electives. Two-quarter courses in physics and mathematics and a physics laboratory course in Electronics and Data Analysis are required in the second year.

The upperclass lecture courses offered by the Department include Mechanics, Wave Motion and Optics, Thermodynamics, Electromagnetic Theory, Quantum Theory, Mathematical Physics, Nuclear Physics, Solid State Physics, and Astrophysics. The upperclass laboratories include Wave Motion, Modern Physics, and Advanced Laboratory. These courses are taught by active researchers in physics who have a strong commitment to teaching, and the classes are generally small (ten to fifteen students).

There are special lectures sponsored by the Society of Physics Students and the Physics Club, as well as reading courses on special topics in physics.

Students interested in majoring in Physics should consult with one of the Department advisers as early as possible in their college careers to plan programs.

Description of Minor The Physics minor program is designed to accommodate a wide variety of interests while still providing a study of the fundamentals. To fulfill the requirements of the minor, a student must take three intermediate and/or advanced courses after completing Elementary Physics. Further information may be obtained from the Physics Department office, Room 109 Dana.

Honors Program and Undergraduate Research Students invited into the Honors Program may take graduate courses, reading courses, and special topics courses in the various research fields of the Department. Such work occasionally leads to presentation of papers at professional meetings and to publication in professional journals.

Political Science Department

Robert E. Gilbert, Ph.D., *Associate Professor and Chairman*

Professors

Robert L. Cord, Ph.D.
David E. Schmitt, Ph.D.

Duane L. Grimes, M.A.
Peter F. Hooper, Ph.D.
Margaret Leahy, Ph.D.
Bruce M. Logan, Ph.D.
Eileen L. McDonagh, Ph.D.
Stewart Reiser, Ph.D.

Associate Professors

L. Gerald Bursey, Ph.D.
Minton F. Goldman, Ph.D.
Suzanne Ogden, Ph.D.
Steven Worth, Ph.D.

Instructor

Donald J. Reaves, M.A.

Assistant Professors

Stephen F. Coleman, Ph.D.
Malcolm Cross, Ph.D.

Professional Preparation

Aims Political science is concerned with the study of political institutions, the social and economic forces that shape them, the cultural context within which they operate, and human behavior in political matters.

The Department of Political Science at Northeastern University has three objectives: (1) to help students obtain an education within the framework of the best liberal arts tradition; (2) to help heighten students' awareness of political forces in the environment and to sharpen their perception of their role as citizens in a democratic society; and (3) to provide the opportunity to acquire a solid academic foundation to those who elect political science, law, or public administration as a professional career.

Description of Major The study of political science can be the gateway to a liberal education with its benefits of broadened interests, sharpened sensibilities, and a quickened sense of civic responsibility. If you have a special interest in politics, studies in this field can help you prepare for governmental service, the study of law, the teaching of government and related subjects, or a career in politics or public management.

For the student who wishes to pursue professional studies at the graduate level, concentration in Political Science and Public Administration can lead to many attractive opportunities. As in many fields, competition for positions is keen, so the student's success will depend upon such factors as academic record, experience, and personal initiative. There are some career opportunities in public management at the federal, state, and local levels of government, while positions in research are available in government and university research bureaus. Teaching offers further career possibilities, as do specialized agencies in international bodies like the United Nations, which call for the skills of the political scientist. Individuals with specialized training in political science can compete for positions in less obvious areas: in the public-service programming of educational and commercial television, in journalism, and in legislative study and public relations activities with private associations.

A View of the Major Students may select either the Bachelor of Arts or the Bachelor of Science degree program. Students in the B.A. program have to meet the foreign language and distribution requirements of the College. Students in the B.S. program are required to take courses in

Quantitative Analytical Methods. Both degrees require four quarter hours in each of the following: Introduction to Political Science, Introduction to American Government, Foreign Governments, International Relations, Public Administration, and Political Theory, as well as twenty-four to twenty-eight quarter hours of electives in political science and six electives (twenty-four quarter hours) in the social sciences, with at least one course in at least three of the following: African-American studies, anthropology, economics, history, psychology, or sociology. In addition, the B.S. student is required to take eight hours of research methods. Courses in basic math and FORTRAN and FORGO are also recommended for B.S. students.

Public Administration

The Bachelor of Science program with a concentration in Public Administration provides a third option for the student. This program requires the completion of forty hours of Introductory Political Science, American Government, Public Administration, Public Policy Analysis, Personnel Administration, Public Budgeting, and similar courses. Students must also complete at least sixteen quarter hours of Public Administration electives. Also, students may undertake a directed-study project based on an internship experience in a government agency. In addition, they must complete twenty-four hours of electives in the social sciences, at least eight of which should be in economics.

Description of the Minor A minor in Political Science is also available to interested students. It entails successfully completing seven political science courses, of which at least two must be from the following: Introduction to Politics, Introduction to American Government, Introduction to International Relations, Introduction to Foreign Governments, or Public Administration.



Psychology Department

Martin Block, Ph.D., *Associate Professor and Acting Chairman*

Professors

John C. Armington, Ph.D.
 Harlan Lane, Ph.D., Doc. ès
 Lettres
 Helen S. Mahut, Ph.D.
 Bertram Scharf, Ph.D.
 Murray Sidman, Ph.D.
 Alexander A. Skavenski, Ph.D.
 Michael Terman, Ph.D.
 Harold S. Zamansky, Ph.D.

Assistant Professors

Karen Geelen, Ph.D. (Adjunct)
 Stephen Harkins, Ph.D.
 Judy Shepard-Kegl, M.A.

Associate Professors

Edward A. Arees, Ph.D.
 Roger Brightbill, Ph.D.
 Perrin S. Cohen, Ph.D.
 François Grosjean, Ph.D.,
 Doc. ès Lettres
 Charles Karis, Ph.D.
 Harry Mackay, Ph.D.
 Joanne Miller, Ph.D.
 Lawrence Stoddard, Ph.D.

Professional Preparation

Aims The undergraduate curriculum at Northeastern has been carefully designed to introduce students to the scientific underpinnings of modern psychology, enabling them to make a sophisticated choice among opportunities for advanced work.

The field of psychology, broadly defined as the science of behavior, has grown so rapidly that students aiming for careers in the field must almost always anticipate advanced study in specialized areas beyond the bachelor's degree. The diversity of academic and professional activities that we label "psychology" today may be seen in the following sampling of divisions of the American Psychological Association: teaching, experimental, evaluation and measurement, physiological and comparative, developmental, personality and social, social issues, arts, clinical, consulting, industrial, educational, school, counseling, public service, military, adult development and aging, engineering, disability, consumer, philosophical, experimental analysis of behavior, history, community, psychopharmacology, psychotherapy, hypnosis. Thus, undergraduates preparing to be psychologists, or those who just want to learn more about the field, have set quite a goal for themselves!

Description of Major Our courses are not aimed merely at preparing students for advanced training. They also reflect the personal and social concerns of today's undergraduates. For example, psychology recently has produced a new and powerful understanding of how environmental and physiological factors affect man's behavior. It has developed methods that already have transformed profoundly individuals as well as society.

How do we evaluate this science and its technology? How do we ensure that researchers in psychology are free to investigate fully and that the technology is applied humanely to create a better life for all people?

These are only a few of the questions Northeastern undergraduates will be asking as they progress through a curriculum offering opportunities for laboratory practice and experimentation, field experiences in behavior technology, and small-group seminars to encourage critical and creative evaluation of psychology's accomplishments and its future.

Psychology explores many topics, such as the function of the brain in determining behavior; how we see, hear, and learn; what behavioral science can offer in the problem areas of mental retardation, personality problems, infancy, and old age; and how we might suggest social changes based on laboratory data to increase men's and women's accomplishments and satisfactions in the modern world.

A View of the Major The Department offers both a Bachelor of Arts and a Bachelor of Science degree. The B.S. degree is usually recommended for students with a strong scientific or professional interest who ultimately may consider applying to graduate schools in psychology or environmental science. In addition, the Department offers a special B.S. program for Psychology majors who wish to prepare for application to medical school. Since modern psychology is multidisciplinary, the B.A. and B.S. programs both include distribution requirements in allied sciences to fulfill the need for wide exposure to varying techniques of scientific practice and interpretation.

With the science courses and elementary psychology courses as foundations, students in the B.A. and B.S. programs may either pursue a general course of study in psychology or choose one of four major areas for concentration: Language and Cognition, Learning and Behavioral Analysis, Personality and Social, or Sensory and Neuropsychology. The curricula for the areas of concentration have been structured so that the student often takes courses not only in psychology, but also in related disciplines. For example, a student concentrating in Personality and Social takes courses in sociology, anthropology, and speech and drama. The student's final choice of concentration should be made only after personal consultation with his or her Psychology Department adviser.

Within each of the four concentrations, the student is expected to progress through a sequence of specialty courses, laboratory courses, and a seminar. The student is thus afforded the opportunity to explore a given area of psychology in depth, as well as to acquire an overview of the broader issues in psychology. Furthermore, all B.S. students and qualified B.A. students participate in the Department's Directed Studies Program, in which, under the direction of a faculty member, they engage in research projects in various laboratories in the Department. In this way, classroom learning is complemented by laboratory research, where the student may learn by doing.

Research Laboratories

The student who enrolls in laboratory courses and directed-study courses will take advantage of the Department's resources for research, which include: (a) in the field of learning, behavior laboratories for research with humans, monkeys, rats, and pigeons; and, in collaboration with the Walter E. Fernald State School, an instructional setting for research and training in behavior modification with retarded children and adults; (b) in neuropsychology and ethology, primate and rodent surgeries in neuroanatomical and histological laboratories, with apparatus for stimulating and recording activities of the brain; (c) in the psychology of vision and hearing, specialized enclosures and equipment for presenting visual and auditory stimuli and for measuring responses of the eye and the ear, including on-line

computers; (d) in language and cognition, audio and video recording facilities and a computer for control of stimulus and response variables; and (e) in the field of personality, darkrooms, tachistoscopes, and an eye-movement camera.

Minor in Psychology

Each student is required to take at least eight psychology courses, including the introductory psychology sequence, intermediate specialty courses, and at least one laboratory course. The minor program itself is quite flexible, designed for students with a broad range of interests and career goals. Students may choose either to distribute the eight psychology courses over a broad range of areas or to focus on one of the four areas corresponding to the major concentrations: Language and Cognition, Learning and Behavior Modification, Personality and Social, and Sensory and Neuropsychology. Students are assigned faculty advisers in the Department to help them select the minor program that best suits their needs.

Topics in Psychology Series (TIPS)

As well as offering courses designed primarily for psychology majors, the Department also offers a variety of courses without prerequisites that are addressed to specific topics of broad current interest. Slated for 1981–1982 are: Psychological Testing, Marriage and the Family, The Disordered Mind, Body Language, Sexual Behavior, Brain and Mind, Psychology and the Law, Animal Communication, Man in Isolation, Memory and Remembering, The Young Offender, and Behavior Problems and Their Therapies.

Sociology and Anthropology Department

Ronald J. McAllister, Ph.D., *Associate Professor and Chairman*

Professors

Morris Freilich, Ph.D.
Elliott A. Krause, Ph.D.
Frank F. Lee, Ph.D.
Jack Levin, Ph.D.
Morton Rubin, Ph.D.
Earl Rubington, Ph.D.

Associate Professors

Richard Bourne, Ph.D.
Patricia Golden, Ph.D.
Wilfred Holton, Ph.D.
Debra Kaufman, Ph.D.
Lila Leibowitz, Ph.D.
Carol A. Owen, Ph.D.

Assistant Professors

Arnold Arluke, Ph.D.
Marcia Bystryn, Ph.D.
C. Paul Dredge, Ph.D.
Maureen Kelleher, Ph.D.
Alan Klein, Ph.D.
Thomas Koenig, Ph.D.
Marlene MacLeish, Ed.D.
Judith Perrole, Ph.D.
Thomas Shapiro, Ph.D.
Carmen Sirianni, Ph.D.

Emeritus

Blanche Geer, Ph.D.

Professional Preparation

Aims The disciplines of sociology and anthropology seek a better understanding of the societies and social arrangements in which human beings live and die; how societies function and change; and how individuals, groups, and institutions interact.

Description of Major A major in this Department offers background preparation for a wide spectrum of careers in public or private service, as well as specific preprofessional training.

Students may concentrate in sociology or anthropology or both. Students who wish to study both must design their own programs, with the help of an adviser. Those enrolled in premedical, prelegal, paramedical, or a variety of other preprofessional programs should find that sociology and anthropology courses offer a useful background.

A View of the Major Majors may follow either a four-year full-time program or a five-year cooperative course of study. Cooperative work assignments vary from placement in mental hospitals and social agencies to placement in university, government, and other research and policy-making settings. Transfer between the five-year co-op program and the four-year full-time program is possible, and registration in either is not an irreversible decision.

The Department offers both a Bachelor of Arts and a Bachelor of Science degree. The requirements for each degree, both in sociology and in anthropology, are outlined below. A student with specific goals may, of course, take more departmental electives than are required. B.A. students may wish to look at the concentration requirements for B.S. students and consult their advisers for assistance in planning programs with specialized goals.

The Department offers a B.S. with concentrations in anthropology or sociology. Students selecting this option must fulfill all the departmental requirements for the B.A. degree and must take a coherent program involving additional course work as outlined below. Specializations are interdisciplinary and involve more intensive study within a concentration.

A Minor in Sociology In addition to the major program, the Department also offers students majoring in other disciplines the opportunity to take a minor in Sociology. The minor program consists of the following:

- A. 21.100 Introduction to Sociology
- B. Two courses from among
 - 21.240 Research Methods I
 - 21.241 Research Methods II
 - 21.280 Classical Social Thought
 - 21.281 Current Social Thought
- C. Any three-course specialization in sociology arranged between the student and the adviser.

A Minor in Anthropology In addition to its major program, the Department also offers students majoring in other disciplines the opportunity to take a minor in Anthropology.

The minor program consists of the following:

- A. 20.100 Introduction to Social Anthropology
- B. 20.130 Language and Culture
 - 20.135 Individual and Culture
 - 20.160 Sex, Sex Roles, and Family
- C. Any two-course specialization in Anthropology arranged between the student and adviser.

For other minors see Special Programs, page 81.

Anthropology

B.A. students in Anthropology must take at least forty-eight quarter hours in departmental courses, including forty in anthropology and eight in sociology. The exact distribution can be arranged. Minimum requirements are as follows:

- A. Preparatory—Introduction to Anthropology and Introduction to Sociology. (Prospective majors with equivalent background may be exempted. Students should consult a departmental adviser.)
- B. Core Requirements—at least three of the following, as available: Language and Culture; Individual and Culture; Human Origins; Anthropology of Religion; Sex, Sex Roles, and Family; and Peasant Society and Culture.
- C. Electives—Students must take at least six additional electives in anthropology and at least one additional elective in sociology. Qualified students are encouraged to take relevant graduate courses with the consent of the instructor. Majors should freely consult their advisers since courses elsewhere in the University may round out a special interest or focus.
- D. Nondepartmental Requirements—Six courses from the following social sciences: African-American studies, economics, history, political science, and psychology.

B.S. students in Anthropology take the same basic core of courses and, in addition, an individually designed specialization in an area of interest consisting of at least five courses. Students *must* confer with an adviser

who will help develop such a program, place it on record, and supervise it. Interdepartmental and interdisciplinary specializations can be arranged in such areas as linguistics, Native American studies, biological anthropology, psychological anthropology, or area studies focusing on Latin America, Africa, Asia, or the Middle East.

Sociology

B.A. students in Sociology must take at least fifty-two quarter hours in departmental courses, including forty-four in sociology and eight in anthropology, and must meet the following minimum requirements:

- A. Preparatory—Introduction to Anthropology and Introduction to Sociology. (Prospective majors with equivalent background may be exempted. Students should check with the Department.)
- B. Core Requirements—Statistical Analysis; Research Methods I; Research Methods II; Classical Social Thought; Current Social Thought; Class, Power, and Social Change.
- C. Electives—The following are minimum requirements: two intermediate courses (at 100 level); two advanced courses (at 200 level); and one intermediate or advanced anthropology course. With the adviser's consent, qualified students are encouraged to take certain graduate and directed-study courses and/or the Senior Majors Seminar.
- D. Nondepartmental Requirements—Six courses from the following social sciences: African-American studies, economics, history, political science, and psychology.

B.S. students in sociology take the same basic core of courses and, in addition, an individually designed specialization in an area of interest consisting of at least six courses, some from within and some from offerings outside the Department. Students *must* confer with an adviser who will help develop such a program, place it on record, and supervise it. It is possible to arrange specializations focusing on social welfare, health services, political studies, urban studies, education and society, ethnic studies, and organizational studies. There are, of course, many other areas of specialization and possible combinations of courses. The following offer a few examples (courses in the Department of Sociology/Anthropology are indicated by an asterisk):

Social Welfare

- *Sociology of Poverty
- *Social Policy and Social Intervention
- *Human Service Organization
- *Sociological Issues in Welfare
- Social Welfare Problems
- Politics of Poverty
- Poverty and Discrimination

Health Services

- *Medical Sociology
- *Death and Dying
- *Health Care as a Social Issue
- *Culture and Mental Illness
- Medical Economics
- Community Medicine and the Delivery of Health Care
- Human Services Administration

Urban Studies

- *Urban Society
- *Community Analysis
- *Seminar in Urban Studies
 - Urban and Metropolitan Government
 - Urban Economics
 - Urban Geography
 - American Urban History

Law and Society

- *Crime, Conflict, and Justice
- *Sociological Theories of Crime
- *Social Policy and Social Intervention
 - Civil Liberties
 - Law and Society
 - The Economics of Crime
 - The Politics of the Criminal Justice System

Sex Roles and Family

- *Sex, Sex Roles, and Family
- *Sociology of the Family
- *Kinship and Society
- *Changing Sex Roles
- *Violence in Family
 - Sex Roles in American Politics
 - Women in History
 - Politics of the Black Family

Organizational Studies

- *Sociology of Business and Industry
- *Administration and Formal Organization
- *Social Policy and Social Intervention
- *Human Services Organization
 - Organization Theory I
 - Industrial Organization and Public Policy
 - People in Organizations

Social Psychology

- *Social Psychology (Sociology, Psychology Departments)
- *Anthropology of Aggression
- *Group Behavior I, II
- *Seminar Soc. Psych.
 - Personality
 - Psychology Lab. Soc. Psych.
 - Psychology Lab. Personality

**Departmental Course*

These are samples of approaches to particular areas; there are many other possible combinations of courses as well as many other areas of specialization.

Speech Communication Department

Carl W. Eastman, M.A., *Associate Professor and Chairman*

Associate Professor

Michael L. Woodnick, M.S.

Assistant Professors

Joan F. Drexelius, Ph.D.

John T. Marlier, Ph.D.

Professional Preparation

Aims Through its Speech Communication major, the Department seeks to stimulate the personal and professional growth of the student through a study of the principles and methods of communication.

Courses are designed to aid students in understanding the communication processes and the roles of communication in society. The Speech Communication program also helps students to increase their self-awareness and heighten personal development by offering theoretical and experiential learning opportunities.

More than twenty-five courses in such areas as persuasion, group discussion and conference techniques, interpersonal communication, mass media, broadcasting, communication theory, and public address are designed to meet the needs of students, whether majoring or minoring in Speech Communication or selecting courses for personal development to supplement professional training in other fields.

Description of Major To provide for the unique needs of students with specialized interests or professional goals, the Department offers directed-study and internship programs. Virtually every Speech Communication major completes one or more projects in each of these programs.

In directed study, the student works closely with a chosen faculty adviser while completing a student-selected research or performance project. Generally commensurate with the workload of a one-quarter course, directed-study projects deal with such areas as surveying and interpreting communicative behavior, studies of the rhetoric of political campaigns, or the effects of the media on society.

The internship program offers students the opportunity for professional development through field experiences designed to complement or implement their classroom training. Distinct from the Co-op Plan, the internship program provides academic credit for unpaid, part-time, on-site activities during the student's academic quarters. Internships, carefully selected by the student and faculty advisers with an understanding based on the student's goals, often result in the student's placement in active roles in commercial broadcasting studios, advertising firms, and governmental agencies.

The objectives for the Speech Communication major are threefold:

- 1) To stimulate the student's personal growth and development in perception and self-expression through the study of historical, contemporary, and artistic aspects of speech and communication, and to provide organized knowledge and critical insight;
- 2) To help to prepare the student for professions that require both a theoretical and a technical knowledge of communication, such as

education, the law, government service, public relations, advertising, social service, industrial communications, and the arts;

- 3) To help prepare the student for advanced graduate study in communication and other professional fields.

Overview Students may receive either a B.A. or a B.S. degree through a concentration in either Group and Public Communication or Personal Performance.

It is recommended that students interested in the Group and Public Communication concentration select elective courses appropriate to their area of interest in the Departments of Psychology, Sociology, Political Science, Philosophy, and English.

Students interested in the Personal Performance concentration should elect courses in drama, English, education, and philosophy.

Description of Minor Students majoring in such fields as Political Science, Business, Human or Social Sciences, Education, may develop a minor that complements their academic major by selecting appropriate courses with the aid of a Speech Communication faculty adviser.

Basic theoretical competence and personal skills in the areas of intra-personal, interpersonal, group, organizational, and public communication may be acquired by taking the following four core courses required of all minors: Introduction to Communication Theory, Business and Professional Speaking, Interpersonal Communication I, and Group Discussion.

Individual needs and specific goals may be satisfied by selecting three additional electives with the approval of the Speech Communication faculty. Recommended elective groupings have been developed for students concentrating in Management, Marketing, Elementary or Secondary Education, Human or Social Services, Political Science, Sociology, Psychology, and Journalism.

Special Programs in the College of Arts and Sciences

Independent Major

After their second quarter, students may petition the dean of the College that they meet the requirements for the Bachelor of Arts degree as independent rather than departmental majors. The independent major must center on a discipline or combination of disciplines in the arts and/or sciences.

A faculty member acting as the student's academic adviser initially reviews the program, which must meet all College requirements. The program is then submitted to the appropriate committee for final approval. Requirements and procedures for the major should be discussed in advance with an academic adviser in the dean's office.

Minors

Students with upperclass status are eligible to select a minor from the arts and sciences departments offering minor programs. Upon completion of a department's minor requirements, the minor will be indicated on the transcript. Since not all departments offer minor programs, students interested in beginning a minor program should consult an academic adviser in the dean's office or the department chairperson.

Currently, minors are offered in the following areas:

African-American Studies
Anthropology
Art
Biology
Chemistry
Computer Science
Drama (with options in Performance, Technical Theatre
Design, Drama Literature and Criticism)
Economics
English (with options in Writing, American Literature,
British Literature, Literary Analysis, English and Linguistics)
Geology
History
Modern Language (with options in French, Spanish, German,
Russian, Italian)
Media Studies (interdisciplinary)
Music
Philosophy
Physics
Political Science
Psychology (with options in General Language and Cognition,
Learning and Behavior Modification, Personality and Social,
Sensory and Neuropsychology)
Sociology (with options in General Sociology, Social
Psychology)
Speech Communication
Urban Studies
Women's Studies (interdisciplinary)

**Specialization in
Personality and
Social Psychology**

The Departments of Psychology and Sociology/Anthropology have combined their resources to offer students a new interdisciplinary specialization that can be pursued for a degree in either of these academic departments.

The specialization in Personality and Social Psychology offers students the opportunity to acquire a systematic understanding of various life processes, such as childrearing, aggression, anxiety, prejudice, attitude formation and change, moral development, and psychopathology. It includes studies of attraction and love, conformity, formation of identity, helping behavior, morality, and other related topics.

Students pursuing an interdisciplinary specialization take courses in both the Psychology and Sociology/Anthropology Departments. However, the student may select the department in which the specialization will be pursued.

In making this selection, the student should consider how each department differs in methods and level of analysis. These differences as well as various course offerings are outlined in a brochure titled *A New Specialization: Personality and Social Psychology*, which can be obtained by writing to the Department of Psychology (234 Nightingale Hall) or the Department of Sociology/Anthropology (580 Holmes Hall). Also, prospective students should discuss their potential department affiliations with Professors Golden or Levin (Sociology/Anthropology) and Professors Harkins or Zamansky (Psychology).

New Minor in Women's Studies

The present student generation is facing a unique challenge in blending home, family, and career roles. Within the context of academic disciplines and to help students meet that challenge, the minor in Women's Studies presents students with opportunities to examine coherently issues surrounding changing sex roles.

Nine courses are required for the minor: Introduction to Women's Studies; Sex, Sex Roles, and Family; five courses selected from the areas of Human Development and Family, Women in History, Women in Literature, and Economic, Political and Social Perspectives on Women; and two research seminars in Women's Studies, which require students to address problems in depth. Working closely with faculty, students will pursue independent research on a topic of their choice and in this way create programs that meet individual personal and professional career needs. Interested students should contact Professor Lila Leibowitz in the Department of Sociology and Anthropology.

Urban Studies Minor

Most Northeastern students live, work, and play in an urban environment. The Urban Studies Minor seeks to give students a broad interdisciplinary perspective on city life, including such topics as the urban economy, social structure, politics, administration, race, geography, history, architecture, and literature.

Completion of the minor requires seven urban-focused courses from the social sciences and humanities. It may include appropriate courses taken as part of the student's major. For further information, please contact the chairpersons of the program, Professor Clay McShane in the History Department and Professor Gregory Wassall in the Economics Department.

Courses in American Sign Language



Students from all majors are welcome to participate in the extensive series of courses on the American Sign Language, the primary language of the American deaf community. Included are courses on beginning and conversational ASL and on Sign Language Interpreting. Students who pursue the sequence of conversational courses not only have the opportunity to learn ASL, but are exposed to linguistic and cultural aspects of the deaf community. The series of interpreting courses offers the student an opportunity to become a Sign Language Interpreter. All courses are taught by experienced instructors, including deaf and hearing teachers, who have native proficiency in ASL and/or background in the linguistics of ASL. (See also Linguistics, page 60.)

Boston-Bouvé College of Human Development Professions

Paul M. Lepley, Ed.D., *Dean*

Joseph E. Barbeau, Ed.D., *Associate Dean of Graduate Studies*

Charles F. Haley, Ed.M., *Associate Dean*

Janice Walker, A.B., *Assistant Dean of the Graduate School*

Jean Czajkowski, *Assistant Dean*

Aims Boston-Bouvé College of Human Development Professions has seven undergraduate departments—Curriculum and Instruction, Foundations of Education, Speech-Language Pathology and Audiology, Health Education, Physical Education, Physical Therapy, and Recreation and Leisure Studies. The College also has graduate programs in Counselor Education, Curriculum and Instruction, Educational Administration, Foundations of Education, Rehabilitation Administration, Special Education, Speech-Language Pathology and Audiology, Physical Education, Physical Therapy, and Recreation and Leisure Studies, with the Master of Education, Master of Science, CAGS, and Doctor of Education degrees conferred.

The primary goal of the College is to provide the very finest education for every student. To meet demands for fully qualified personnel, the College strives to develop the independent, self-reliant individual.

A View of the Five-Year Program Professional preparation is based in the liberal arts and sciences, with orientation to each profession beginning in the freshman year. There is a concentration on specific competencies spaced throughout the programs and on professional theory and practice in the last two years. In the junior or senior year, all students have the opportunity to synthesize knowledge and skills through supervised experiences in clinical practice, student teaching, field experience, or internships. Each curriculum is enriched by cooperative experiences that, for the most part, are related to a student's area of specialization. At times, co-op is professionally unrelated, but it is always concerned with people, thus providing an opportunity of inestimable value in any career.

Facilities

The facilities of the College are quite diversified. Dockser Hall houses administrative and faculty offices, classrooms, reading rooms, gymnasium, dance studio, physiology of exercise laboratory, locker and shower facilities, as well as a community recreation laboratory, arts and crafts area, and seminar rooms. The swimming pool, weight room, handball/racquetball courts, offices, and shower and dressing facilities are located in the Barletta Natatorium complex. The Cabot Building, attached to Barletta, contains one very large gymnasium and another well equipped for gymnastics, as well as wrestling, exercise, and weight training rooms, an indoor track and activity area, offices, and extensive locker room space.

In Room 1, Holmes Hall, the Department of Curriculum and Instruction provides a Reading Clinic, which permits private corrective instruction of fourteen persons, usually area school children, as firsthand experience related to the department's courses in reading instruction. The department also provides an additional resource in the F. Andre Favat Center, in Nightingale Hall, which houses books and other materials representative of school and agency tools of instruction and service. Forsyth Building is the location for a Speech-Language-Hearing Clinic, where students may observe, through one-way glass or television monitors, the actual delivery of clinical services. This clinic and a Speech Communications Research Lab-



oratory are facilities of the Department of Speech-Language Pathology and Audiology.

The Physical Therapy Department is located in Mary Gass Robinson Hall. On the third and fourth floors are the physical therapy faculty offices, the Lupean Professional Library, classrooms, and three laboratories. The laboratories are designed and equipped specifically for the practice of clinical procedures. The library's reading room supplements the University library, maintaining an up-to-date collection of physical therapy and medical books for use by students and faculty in the program and the College.

The Warren Center serves as a practical laboratory for the College. Its athletic fields and tennis courts, ropes course, natural setting of lake, woods, fields, streams, winterized cottages, and Hayden Lodge provide year-round opportunities for outdoor learning twenty-five miles from the Boston campus. Courses, conferences, seminars, and workshops are conducted at the Center throughout the year and thus serve University and community needs.

Admission

See page 193 for information concerning admission. In the third year, prior to the first supervised clinical education experience, Physical Therapy students must be examined either by physicians in the University Health Services, at a moderate fee, or by a personal physician.

Graduation Requirements

Degrees Students graduating in Elementary and Secondary Education, Human Services, Health Education, Physical Education, Recreation and Leisure Studies, and Speech and Hearing earn the degree of Bachelor of Science in Education, and students graduating in Physical Therapy receive the degree of Bachelor of Science in Physical Therapy. These degrees are awarded to qualified candidates who have completed the prescribed curricula. Student teaching, field experience, or clinical practice is an integral part of the curriculum and is required for graduation.

Qualifications

Quantitative The quarter hours required in each curriculum differ.

	Q.H.
Elementary/Secondary Education	181/177
Health Education	175
Human Services	176
Physical Education/Athletic Training	181/185
Physical Therapy	170
Recreation and Leisure Studies	172
Speech and Hearing	179

Students must satisfy the requirements of the Department of Cooperative Education before they become eligible for their degrees.

Senior-year course work and required experiences must be completed in full-time residence at Northeastern University or in an educational setting approved by the College.

Qualitative The overall cumulative quality point averages required to enter each class level are explicitly stated in the Student Handbook. Throughout the professional sequence, students must maintain required averages and demonstrate a high level of personal and professional maturity to continue field practice and be approved for graduation. Because of accreditation recommendations and differences in curricula, variations in qualitative requirement may occur.

Transfer students in any curriculum may be accepted into the College at upperclass levels if there are available spaces. Each transcript is individually assessed for qualification, placement, and course design.

Graduation with Honor

Candidates who have attained superior grades in their academic work will be graduated with honors. Upon special vote of the faculty, a number of this group may be graduated with high honors or highest honors. Students must have been in attendance at the University for at least six quarters before they become eligible for honors at graduation.

Program Accreditation

The curriculum in Physical Therapy is accredited by the American Physical Therapy Association. Elementary and Secondary Education, Health Education, Physical Education, and Speech and Hearing are accredited by the National Council for Accreditation of Teacher Education. Programs in Elementary and Secondary Education, School Health Education, and Physical Education are also state-approved under the Interstate Certification Compact.

Licensure/Registration

All fifty states have laws governing the practice of physical therapy. In order to be eligible for employment to practice physical therapy, graduates must meet the specific legal requirements of the state in which they wish to work. In most states the requirements include graduation from an accredited school of physical therapy and a satisfactory grade on a written examination. Graduates are responsible for finding out what the specific legal requirements are to practice in the state in which they seek employment.

Certification

Upon successful completion of the programs in Elementary and Secondary Education, School Health Education, and Physical Education, students are eligible to apply for certification by the Commonwealth of Massachusetts. Certification is required for public school teaching, but does not guarantee a position. Reciprocal certification is available in many states of the United States. Graduates are responsible for determining the requirements of the states in which they are interested.

Focus on the Student

There is a uniqueness about this College. Perhaps it is the personal touch, a keen interest in every young man and woman, expressed in individualized advice and counsel. The College has its own professional clubs and Dance Theatre. Its social clubs and exciting assemblies contrast with study rooms, seminars, and places for research. There is skiing in winter, camping in summer, and year-round sports.

Community service is stressed in every department—service to those with special needs: the physically handicapped, inner-city youth, the aging.

Department of Curriculum and Instruction

Russell J. Call, Ed.D., *Associate Professor and Chairman*

Professors

Melvin E. Howards, Ph.D.
Maurice Kaufman, Ph.D.
Paul H. Tedesco, Ph.D.

Assistant Professors

Thomas H. Clark, M.A.
Carlton B. Lehmkuhl, Ph.D.
John F. Maguire, Ed.M.

Associate Professors

Nicholas J. Buffone, Ph.D.
Leslie A. Burg, Ed.D.
Mary J. Lee, Ed.M.
Robert C. McLean, Ed.D.
Harold A. Miner, Ed.D.
Sandra M. Parker, Ed.D.

The Department of Curriculum and Instruction provides teacher preparation programs in a variety of fields and levels. To assist students enrolled in these programs, the Department has three support units: the Reading Clinic, the F. Andre Favat Learning Resources Center, and the Children's Center (a day-care center). The aims of the Department are to make it possible for students to gain certification in a teaching major and/or level and to acquire the competencies necessary for success in teaching.

Teacher Preparation

Early Childhood Education (K-3) Students in the Early Childhood Education program have the opportunity to pursue studies in the College of Arts and Sciences and in other basic colleges of the University, as well as in the Boston-Bouvé College of Human Development Professions. This broad academic background, combined with experiences in the Cooperative Education program, permits the development of a solid professional base. The University's Children's Center, a day-care facility for children ranging in age from two years, nine months to six years, provides experiences in fieldwork for students in the Early Childhood Education emphasis. Pre-student teaching experiences in appropriate field settings are an integral part of a number of required courses.

Elementary (Grades 1-6) Elementary Education majors acquire a broad academic base by enrolling in courses chosen from the various colleges of the University. Acquiring the necessary teaching competencies is the result of not only the course experiences, but the work experiences in the Cooperative Education program and in the pre-student teaching field activities. In addition to those courses required of all Elementary Education majors, students are expected to choose an area of emphasis from one of the following: Humanities, Language-Reading, Science-Mathematics, Social Science, or Special Education.

Emphases usually consist of 40 quarter hours of courses. Each emphasis has been designed to help focus the student's studies but does not lead to certification in that specific area. It may, however, serve as a catalyst for further study in a graduate program.

Middle School Education (Grades 5-9) Students enrolling in this major are expected to acquire competence in all of the academic subjects generally taught in these grades. Additionally, the equivalent of a college minor in one academic subject is required. The details of this major are worked out with an adviser early in the academic career of the student.

Secondary Education (Grades 9–12) Those interested in teaching grades 9 through 12 may major in one of the following teaching areas: Biology, English, General Science, Mathematics, or Social Studies. Programs in secondary education provide not only for the acquiring of a major in one of the fields but also for gaining experience through Cooperative Education and through required courses and pre-student teaching field experiences. All of these collectively assist in the student's effort to achieve the needed competencies.

Student Teaching Student teaching is a full-time experience for a complete academic quarter during the senior year. It follows several pre-student teaching experiences that are designed to help the student toward a rewarding quarter of student teaching. A University professor and a cooperating classroom teacher have joint responsibility in the supervision of each student teacher.

Teacher Certification

Inasmuch as public education is a state responsibility, each state prescribes the conditions under which persons may be licensed to teach in its public schools. The requirements for obtaining a certificate for teaching, therefore, vary among the different states.

These programs are designed to meet the requirements for certification in the Commonwealth of Massachusetts and in certain other states. Details may be obtained from the Office of the Dean.

Foundations of Education Department

Joseph Meier, Ed.D., *Associate Professor and Chairman*

Professors

E. Lawrence Durham, M.A.
E. Vaughn Gulo, Ed.D.
John D. Herzog, Ph.D.
Mervin D. Lynch, Ph.D.

Assistant Professor

David L. Cox, Ph.D.

Associate Professors

Ronald E. Baptiste, Ed.D.
Wendell R. Brown, LL.B., D.S.
Irene A. Nichols, Ed.D.
Barbara A. Schram, Ed.D.
Alvin D. Zalinger, M.A.

The Department of Foundations of Education offers basic and advanced courses in the Humanities and Behavioral Sciences for students in Education, Human Services, and other Human Development Professions. The aims of these courses are to promote understanding of the processes of intentional socialization and deliberate intervention in people's lives and to familiarize students with the body of knowledge dealing with the principles of human development and well-being.

The courses are open to students across the University provided they can meet the prerequisites listed in the *Basic Day Colleges Course Descriptions and Curriculum Guide*:

- 50.114 Education and Social Science
- 50.121 Human Development and Learning I
- 50.131 Human Development and Learning II

- 50.132 Creative Expression in Children
- 50.133 Educational Applications of Social Psychology
- 50.134 Mental Health in Teaching
- 50.135 Cross-Cultural Studies of Child Rearing and Education
- 50.136 Language and Cognition: Educational Implications
- 50.137 Seminar in Adolescent Psychology
- 50.138 Seminar in Human Learning and Motivation
- 50.139 Seminar in Early Childhood Development
- 50.141 Measurement and Evaluation
- 50.142 Introduction to Educational Statistics
- 50.152 Comparative Education
- 50.153 Philosophy of Education
- 50.154 Current Issues in American Education
- 50.161 Seminar in Group Process
- 50.162 Day-Care and Nursery Schools: Social and Cultural Origins
- 50.163 Schools as Social Systems
- 50.164 Class and Ethnic Relations in Education
- 50.165 Organization and Politics of School Systems
- 50.166 The Human Services Professions
- 50.167 Educational and Psychosocial Development
- 50.168 Education and Social Change
- 50.190 Directed Study

School and Community Health Education Department

Keith A. Howell, Ph.D., *Professor and Chairman*

Professor

H. Marie Garrity, Ed.D.

Adjunct Professor

Elizabeth A. Neilson, Ed.D.

Assistant Professor

Ann M. Downey, Ph.D.

Professional Preparation

Aims Health Education is a relatively new profession concerned with the improvement of individual and community health status through educational activities. While working in a variety of settings such as volunteer health agencies, public health clinics, elementary and secondary schools, or health planning organizations, the health educator facilitates health-promoting behavior changes as a means to enriching the quality of life. The health educator uses techniques and information from both medical and educational fields in order to assist individuals and communities dealing with emotional, physical, or social aspects of health.

Description of Major Since health has psychological, physical, and social components, the program of study is organized to help students develop an understanding of each of these, as well as their interaction. Course study during the first part of the program emphasizes the foundations of



health education in the social and life sciences. Practical experience in health education is included throughout the program to provide the student an opportunity to apply theory and techniques with Boston-area groups. Major courses on contemporary health issues help prepare the student to understand details and complexities of several important health topics. Educational issues and approaches are included in courses to help students understand the role of education in improving health.

Overall, the program of study is intended to produce graduates with the competence to diagnose the health education needs of groups and to develop, organize and evaluate effective educational activities.

The undergraduate program in Health Education offers students, through the Cooperative Plan of Education, the opportunity to graduate with more than a year's work experience in the field. Through placements with health or educational organizations in the Boston area, students can also finance part of their education while gaining on-the-job work experience.

Although individual health status is determined by genetics, environment, diet, and behavior, current research indicates that behavior is the determinant most likely to influence further improvements in the health of individuals. Health education is directed primarily at health behaviors in order to prevent health problems and to promote health. Throughout the program of study, the concepts of prevention, health promotion, wellness, and holistic health serve as common threads in professional preparation. The development of specific competencies for health education roles is an objective in each of the Department program requirements.

College and University Services

The Department of Health Education is interested in the health status of the University community. In an attempt to meet the health needs of students, several elective courses are offered regularly on selected health issues of potential personal and professional interest to any University student. Courses on topics such as stress and health, nutrition, sexuality, mental health, consumer health, drug use/abuse, and aging are designed to provide current information and concepts related to wellness and health promotion. Instruction is organized into lectures, discussion groups, and demonstrations to provide students the opportunity to understand the sig-

nificance and application of recent health-related research findings in their own lives.

Program Accreditation

The professional program in School Health Education is accredited by the National Council for Accreditation of Teacher Education and is approved under the Interstate Certification Compact. Although there are no official accreditation standards for Community Health Education programs in the United States, the Northeastern program is based upon professional preparation guidelines widely accepted in the field of health education.

Certification

Upon successful completion of the requirements for graduation in Health Education, students in School Health Education are eligible to apply for Massachusetts Certification and to teach in the public schools of Massachusetts. Certification is also readily obtained in other states having certification reciprocity agreements with the Massachusetts Department of Education. There are no certification criteria for students in Community Health Education. However, all students must satisfy departmental requirements before being approved for graduation in School and/or Community Health Education.

Sample Freshman-Year Program of Studies in School and Community Health Education

First Quarter

General Chemistry
English
Education and Social Science
Current Issues in Health
First Aid
Physical Education

Third Quarter

Health Concerns of Youth
Biology
English
Mathematics or General
Studies Elective
Physical Education

Second Quarter

General Chemistry
Biology
Education and Social Science
Elective
Instructional Resources
Introduction to Safety
Foundations Health Education

Basic Course Requirements

I. General and Professionally Related Requirements

Course	Q.H.	Course	Q.H.
General Chemistry*	8	Social Science*	8
English*	8	Human Development†	8
Biology*	8	Measurement and Evaluation	4
Microbiology	4	Introduction to Special Education	4
Mathematics*	4	Humanistic Foundations	4
Psychology	8	Physical Education	2
Anthropology	4	General Studies electives	20
Anatomy and Physiology	12		

*Courses are usually taken in the freshman year.

†Courses are usually taken in the sophomore year.

 II. Professional Requirements

Course	Q.H.	Course	Q.H.
Foundations of Health Education*	2	Community Health Organization and Administration of School and Community Health Education	4
Human Sexuality/Family Drug Use and Abuse	4	First Aid*	2
Mental Health	4	Instructional Resources*	2
Nutrition	4	Health Concerns of Youth*	4
Seminar in Health Education	4	Concepts in Health, Aging and Longevity	4
Health Counseling	4	Practicum in School Health or Practicum in Community Health	12
Teaching Procedures/ Curriculum			
Health Education for School and Community Communicable/ Degenerative Diseases	4		
Introduction to Safety	2		
Current Issues In Health	4		

*Courses are usually taken in the freshman year.

Physical Education Department

Carl S. Christensen, Ph.D., *Professor and Chairman*

Professors

John W. Fox, Ed.D.
Richard C. Zobel, Ed.D.

Associate Professors

Robert S. Curtin, Ed.D.
Dorett M. Hope, Ed.D.
William J. Gillespie, Ed.D.
Kerkor Kassabian, Ed.M.
Mary P. Nicholson, M.S.
Judith A. Noblitt, M.Ed.
Harold A. Walker, A.B.

Assistant Professors

Glenn A. Boden, M.Ed.
Marilyn A. Cairns, M.S.
John A. Clayton, Ph.D.
Evelyn B. Howard, M.S.
Marie A. Lintner, Ph.D.
Hugh D. McCracken, Ph.D.

Instructors

Michael Gaudiano, M.S.
Sara A. Umberger, M.A.

Professional Preparation with Teacher Certification

The Department of Physical Education conducts an undergraduate professional program for teacher certification in Physical Education, physical education electives for all University students, and the intramural/club program for men and women.

Aims The teacher certification program in Physical Education is designed to offer students the opportunity to prepare themselves as specialists capable of developing the materials and methods appropriate to teaching physical education in public and private schools at all levels — elementary, secondary, and college. Its graduates are qualified as athletic coaches

and/or trainers, physical education teachers, directors of athletics, supervisors of physical education, and leaders in YMCAs, YWCAs, health clubs, and other youth organizations.

Description of Major Students majoring in this program are offered a strong background in general education. Elective hours are required in the areas of science, social science, and humanities. Courses in physical education include history, philosophy, principles, curriculum development and class procedures, measurement and evaluation, kinesiology, exercise physiology, and motor development and learning. Students receive instruction in the techniques of coaching the various individual, dual, and team sports, and in adapting these activities to the needs of the handicapped. Because physical education overlaps the fields of health and recreation, Physical Education majors may take courses in these areas.

Areas of emphasis in Physical Education include Athletic Training, Dance, Adapted Physical Education, Sports Communication, Coaching, Gerontology, Cardiovascular Health and Exercise, Elementary School, and Secondary School. Class advisers are available to assist students as selections are made.

A View of the Five-Year Major The development and demonstration of personal skill in performance and teaching are an integral part of the professional program. Each student is expected to demonstrate a competent level of knowledge and skill proficiency in swimming, gymnastics, track, badminton, tennis, rhythmic, volleyball, basketball, conditioning, dance, two team sports, and one individual sport. Skill may be demonstrated through competency testing or by taking the appropriate courses. Major students are assigned supervised student-teaching or field experiences in schools or agencies throughout the Greater Boston area. In addition, students have the opportunity to increase their experience with children or adults through cooperative work assignments and in pre-practicum courses.

Clothing appropriate for physical activity classes is required. Fees may be assessed in courses requiring highly specialized equipment, supplies, or off-campus facilities. A one-week resident program at the Warren Center is required during the spring quarter of the freshman year, for which an additional room and board fee is charged.

Physical Education Nonteaching Options

With judicious use of general studies electives and some adjustment in the basic Physical Education curriculum, students may enroll in one of two nonteaching options in physical education—Cardiovascular Health and Exercise or Sports Communication. Preparation in the former is appropriate for those interested in working in health clubs or spas; stress-testing units; and adult fitness programs in YMCAs, YWCAs, or other private agencies; or as exercise specialists in corporate fitness programs. The Sports curriculum is appropriate for those interested in pursuing careers involving sports writing for magazines or newspapers or sports reporting via radio and television.

Program Accreditation

The professional program in Physical Education is accredited by the National Council for Accreditation for Teacher Education, the Interstate Certification Compact/National Association of State Directors of Teacher Education and Certification, and the National Athletic Trainers Association.

Certification

Upon successful completion of the Physical Education requirements for graduation, students are eligible to apply for Massachusetts Certification and to teach in Massachusetts public schools. Those who have completed the Athletic Training area of emphasis within the Physical Education curriculum are eligible to apply to the National Athletic Trainers Association to take the certification examination. Certification in Physical Education and/or Athletic Training does not guarantee a position.

All-University Electives in Physical Education

A broad selection of electives in dance, sports, games, aquatics, and gymnastics is offered for all University students. All classes are open to men or to women with instructional modifications where appropriate.

The elective program places focus on the lifetime use of sports, dance, and aquatics for recreational satisfaction and participation. Classes are subject to cancellation if enrollments are too low.

Dance Theatre

The Northeastern University Dance Theatre offers students interested in jazz or modern dance as a performing art the opportunity to choreograph and/or perform in concert. In addition to an annual University concert production, this group presents several lecture-demonstrations and/or community concerts each year. Admission is by audition.

Intramural and Extramural Sports

Students are provided a comprehensive program of intramural and extramural sports through clubs, leagues, and individual participation. Separate leagues are organized for commuting, dormitory and fraternity students. Intramural sports are organized separately for men and women and, for certain activities, on a coeducational basis. Throughout the year, intramural and club participation may be possible in badminton, basketball, fencing, football, golf, gymnastics, modern and jazz dance, swimming, volleyball, water polo, and other sports. A "drop-in" program for individual leisure physical activity is also provided.

Basic Course Requirements

I. General Requirements for All Physical Education Freshmen (Year One)

Course	Q.H.	Course	Q.H.
English I & II	8	Current Issues in Health	4
Biology I	4	Human Movement	3
Biology II, Chemistry, or Physics	4	Life/Career Planning	3
Social Science I	4	Mathematics	4
History/Philosophy PE	3	General Electives	20
Track & Field	1	First Aid	2
Swimming	1	Group Dynamics	3
Gymnastics I	1	Basketball	1
Volleyball	1	Gymnastics II	1

 II. Upperclass Requirements for Teacher Certification Students (Years Two-Five)

Course	Q.H.	Course	Q.H.
Human Development I & II	8	Kinesiology I and II	8
Educational Statistics	4	Measurement and Evaluation	4
Psych. Elective (specified choices)	4	Exercise Physiology I	4
Anatomy and Physiology I & II	8	Theory of Coaching/Play	2
Adapted PE I	4	Elementary School Activities or	3
Motor Development	4	Secondary School Activities	3
Motor Learning	4	Athletic Training	3
Critical Teaching Skills	4	Administration of PE	4
8 Prof. Skill Electives	8	Curricula Development	3
Boston-Bouvé Electives	10	Student Teaching	12
		4 Teaching, Analysis/Coaching	8
		General Studies Electives	20

Graduation Requirement 180 Q.H.; 185 Q.H. for Athletic Training option

Curriculum may be altered because of changes in state certification regulations.

NOTE: Teaching options in Athletic Training, Adapted Physical Education, Sports Communications, Gerontology, Coaching, and Elementary or Secondary School are available with only minor adjustments to the above-listed curriculum.



III. Professional Requirements for Nonteaching Option in Sports Communication (Years Two-Five)

Course	Q.H.	Course	Q.H.
Fundamentals of Newswriting I & II	8	Human Development I & II	8
Techniques of Journalism I & II	8	Kinesiology I & II	8
Theories of Persuasion	4	Motor Development	4
Grammar for Journalism (required only for those receiving below B in English II)		Motor Learning	4
Take as an elective		Psychology Elective (specified choices)	4
Elect at least one of the following:	4	Theory of Play	2
TV Newswriting		Theory of Coaching	2
Advanced Reporting		Athletic Training	3
TV News Production		Educational Statistics	4
Magazine Writing		Exercise Physiology	4
Basic Photojournalism		Adapted Physical Education	4
Layout and Make-up		Psychology of Coaching & Sport	2
Introduction to Communication Skills		Administration of PE	4
Business & Professional Speaking		Sociology of Sport	2
Interpersonal Communication I		Physical Education Activity Skills	2
Interpersonal Communication II		Coaching/Officiating	2
Anatomy-Physiology I & II	8	Field Experience	12
BBC Electives	9	General Studies Electives	16
		Graduation Requirement	180

NOTE: 10 Q.H. of BBC electives are required.



 IV. Professional Requirements for Nonteaching Option:
 Cardiovascular Health and Exercise Specialist (Years Two-Five)

Course	Q.H.	Course	Q.H.
Anatomy-Physiology I & II	8	Exercise Physiology	4
Kinesiology I & II	8	Cardio-pulmonary Disease	4
Human Development I & II	8	Health Counseling	4
Chemistry I & II	8	Advanced Athletic Training	4
Basic Athletic Training	3	Exercise Testing and Prescription	3
Motor Learning	4	Electrocardiography	2
Motor Development	4	Nutrition	4
Statistics	4	General Electives	8
Psychology Elective (specified choices)	4	Administration of Recreation	4
Public Health	4	Budgeting Systems	4
Clinical Athletic Training	2	Special Problems	4
Measurement & Evaluation	4	Field Experience	12
Counseling Theory and Practice	4	Physical Education Activity Skills: Swimming, Tennis, Conditioning, Badminton, and 7 Electives (these are in addition to the 6 first- year skills)	<u>11</u>
		Graduation Requirement	185

All program options in Physical Education, teaching or non-teaching, must be declared by the end of the sophomore year. Subsequent changes may result in an extended graduation date.

Physical Therapy Department

Christopher E. Bork, Ph.D., *Associate Professor and Chairman*

Professors

Elizabeth J. Fellows, M.A.
Whitney R. Powers, Ph.D.

Associate Professors

Janice L. Foster, M.S.
Ruth P. Hall, B.S.
Pauline A. Cerasoli, M.S.

Assistant Professors

Catherine M. E. Certo, M.S.
Joan S. Lydic, M.S.
Paul F. Mettler, M.S.
Raymond P. Siegelman, M.S.
Pamela A. Stanton, M.S.

Instructors

Sharon P. Borggaard, M.S.
George B. Coggeshall, M.S.
Janet L. Costa, M.S.
Dolores A. Price, B.S.

Professional Preparation

Aims The Department of Physical Therapy is dedicated to the preparation of therapists who can provide services of the highest quality in a time of changing concepts, new trends, and new challenges. Students will have the opportunities to acquire the skill to help patients gain functional independence and to learn to recognize and assist with emotional and socio-economic problems that affect recovery.

Description of Major Physical Therapy is one of the health professions contributing to the delivery of comprehensive health care. The physical therapist is highly skilled in evaluation procedures and in the planning and execution of treatment programs appropriate to a patient's condition or disabilities. Additional responsibilities may include health-care planning and community service.

Physical therapists are employed in institutions such as general hospitals, children's hospitals, university hospitals, rehabilitation centers, schools or centers for crippled children, nursing homes, extended-care facilities, and community, state, and federal agencies. Private practice is another option chosen by physical therapists. In addition, there are increasing opportunities in teaching and research in physical therapy.

A View of the Five-Year Major The five-year program in Physical Therapy, based on the cooperative plan, is unique in physical therapy education.

The program of study integrates liberal arts and sciences and professional courses, with major emphasis on liberal arts in the first two years of the program and on professional preparation in the last three years. The professional courses include such subjects as anatomy, kinesiology, pathology, clinical medicine, neurology, orthopedics, physiology, physical therapy procedures, and administration, as well as clinical experience in various hospitals and clinics.

Lecturers from Tufts University School of Medicine and the New England Medical Center Hospitals, as well as from medical and social agencies in the Boston area, augment the professional staff in the Physical Therapy program.

Supervised clinical education is a strong component of the curriculum and a requirement for graduation. Clinical experience provides the student with opportunities to practice various phases of physical therapy under supervision in preparation for qualifying as a physical therapist. Assignments in clinical education are not confined to the Boston area. They may include physical therapy departments throughout the country, particularly in many states along the eastern seaboard.

Students admitted to the Department of Physical Therapy must maintain acceptable standards of scholarship and performance in the prescribed program. They must also demonstrate good health, verbal fluency, essential motor skills, and emotional maturity; they must complete all required courses and have favorable evaluations from clinical education and co-op experience. To continue in the program, students are required to maintain a grade of C or better in professional courses.

Clinical Education Students on clinical education assignments should plan on additional expenses, including travel.

Accreditation

The program is accredited by the American Physical Therapy Association. Graduates are eligible to apply for state licensure or registration and for membership in the American Physical Therapy Association.

Licensure/Registration

All fifty states have laws governing the practice of physical therapy. In order to be eligible for employment to practice physical therapy, graduates must meet the legal requirements of the state in which they wish to work. In most states, the requirements include graduation from an accredited school of physical therapy and a satisfactory grade on a written examination. Graduates are responsible for finding out what the specific legal requirements are to practice in the state in which they seek employment.

Sample Freshman-Year Program of Studies in Physical Therapy

First Quarter

Foundations of Psychology I
Fundamentals of Mathematics
Basic Animal Biology
Health Education
First Aid

Third Quarter

General Chemistry
Basic Animal Biology
English

Second Quarter

Fundamentals of Mathematics
General Chemistry
English
Introduction to Physical Therapy

In addition to the above courses, students may elect to take Basic ROTC.



Basic Course Requirements

I. General Requirements

Course	Q.H.	Course	Q.H.
Fundamentals of Mathematics*	8	Basic Physics†	9
Basic Animal Biology*	8	Human Physiology†	8
English*	8	Human Anatomy†	4
General Chemistry*	10	Foundations of Psychology I*	4
Current Issues in Health*	4	4 General Electives	16
First Aid	2	Foundations of Psychology II†	4

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Introduction to Physical Therapy*	2	Advanced Therapeutic Exercise	5
Introduction to Physical Therapy†	2	Neuroanatomy	4
Perceptual and Motor Learning†	3	Integration of Therapeutic Exercise	2
Clinical Gross Anatomy	6	Electrical Testing and Treatment Procedures	2
Physiology for Physical Therapists	3	Research Design	4
Massage	2	Psychosocial Aspects of Illness	3
Clinical Medicine I, II, III	10	Physical Therapy in the Health Care System	3
Clinical Psychiatry	2	Supervised Clinical Education	5
Clinical Kinesiology	4	Clinical Seminar	2
Basic Therapeutic Exercise	4	Administration	3
Evaluation Procedures	3	Investigative Studies	6
Prosthetics/Orthotics and Functional Activities	3	Graduation Requirement	170
Management of Medical/Surgical Respiratory Disorders	2		

*These courses are usually taken in the freshman year.

†These courses are usually taken in the sophomore year.

Department of Recreation and Leisure Studies

George R. Atkinson, Ed.D., *Assistant Professor and Acting Chairman*

Professor

Peter J. Graham, Ed.D.

Assistant Professors

Jay B. McMillen, Ph.D.

John W. Shank, M.S.

Associate Professors

Elaine G. Eliopoulos, Ed.D.

Richard B. Morrison, Ed.D.

Frank M. Robinson, M.S.

Instructor

Patricia A. Shank, M.S.

Professional Preparation

Aims Recreation is a vital profession in this rapidly changing world. A major in Recreation and Leisure Studies offers diversified curricular opportunities and multiple career options for graduates. As societal changes reflect a balance of work, education, and leisure, the Recreation and Leisure Studies program prepares students to guide others in the integration, planning, and sorting out of changes throughout their life span and to manage recreation agencies in a variety of leisure service settings.

Description of Major The curriculum provides an opportunity for students to select from one of three flexible professional career areas of concentration: Recreation Management, Therapeutic Recreation, and Outdoor Recreation/Environmental Education. The Recreation Management concentration is designed to provide students with the knowledge and skills that will enable them to pursue positions in commercial recreation and tourism;

planning firms; management organizations; federal, state, and local public agencies; consulting firms; health and fitness centers; and private agencies. The Therapeutic Recreation concentration is designed to equip students with the professional job skills that are essential to work with disabled people in institutions and community-based settings, including hospitals, rehabilitation facilities, nursing homes, schools, and residential centers as well as day-care vocational/avocational centers and in therapy collaboratives. Students with an emphasis in Outdoor Recreation/Environmental Education have an opportunity to pursue positions as interpreters, park rangers, resource recreation managers and planners, conservationists, and environmental impact specialists.

A View of the Five-Year Major The cooperative program of study is based in the liberal arts and sciences, with courses in professional education beginning in the freshman year. All students take a common department core of courses and professional skills that complement one of three areas of concentration.

An internship in a selected recreation and leisure service setting provides both an exciting and practical opportunity for students to gain professional, career-level work experience. In addition, the cooperative plan offers an opportunity for practical, on-the-job experience in youth agencies, municipal recreation departments, private recreation agencies, hospitals and institutions, nursing homes, commercial recreation and tourism organizations, and many more selected settings.

A variety of experiential education opportunities supplementing regular course offerings is available at the Warren Center of Northeastern University, a unique teaching-learning laboratory within easy commuting distance of Boston, and through the Swiss Studies overseas summer program centered in Leysin, Switzerland.

Special Requirements

Students are scheduled for their one-week resident camp experience at the beginning of the freshman year at the Warren Center in Ashland, approximately 25 miles west of the Boston Campus. The cost for this experience is approximately \$100 per student.

One week of instruction in skiing and winter sports is scheduled as an elective during the winter quarter of the junior or senior year. The cost is approximately \$160-\$170 per student.

Sample Freshman-Year Program of Studies in Recreation and Leisure Studies

One-Week Camp Experience Prior to Opening of Academic Year

First Quarter

English
Speech Fundamentals
Social Science
Life Career Planning

Second Quarter

Basic Biology
English
Social Science
Foundation of Leadership
in Leisure Services

Third Quarter

Basic Biology
Current Issues in Health
Social Science
Recreation Skills

Basic Course Requirements (172 QH are required for graduation)**I. General Requirements (85 QH)**

Course	Q.H.	Course	Q.H.
Biology	8	Earth Science electives	8
English	8	Anatomy and Physiology	8
Social Science	12	Free Electives	26
Speech Fundamentals	3		
Current Issues in Health	4		
Human Development	8		

II. Professional Core Requirements for all Students (55 QH)

Course	Q.H.	Course	Q.H.
Life/Career Planning	4	Foundations of Leadership in Leisure Services	4
Intro. to Recreation and Leisure	3	Dept./Univ. Skill electives	8
Research	8	Intern. Seminar	1
Program Planning	4	Internship in Recreation	16
Group Dynamics	3	Senior Seminar	4

III. Professional Requirements for Recreation Management Concentration (32 QH)

Course	Q.H.
Budget Analysis	4
Elements of Outdoor Recreation Planning	4
Administration of Recreation and Parks	4
Program Evaluation	4
Professional Electives	16



 IV. Professional Requirements for Therapeutic Recreation Concentration
(32 QH)

Course	Q.H.	Course	Q.H.
Social and Psychological		Overview of Physical	
Impacts of Disabilities	4	Disabilities	4
Foundations of Psychiatric		Program Planning in	
Service in Therapeutic		Therapeutic Recreation	4
Recreation	4	Process of Aging	3
		Professional electives	13

 V. Professional Requirements for Outdoor Recreation/Environmental
Education Concentration (32 QH)

Course	Q.H.	Course	Q.H.
Environmental Education	4	Elements of Outdoor	
Seminar on Environmental		Recreation Planning	4
Issues and Legislation	4	Survey of Recreation	
Interpretation of Ecological		Facilities	3
and Social History	4	Professional electives	13

 VI. Professional Electives

Course	Q.H.	Course	Q.H.
Sports Leadership	2	Social Dance Leadership	2
Survey of Aquatics	2	Leisure and the Community	
Introduction to Winter		School	4
Skills	1	Leisure Counseling	4
Camp Leadership	2	Workshop Design	3
Survey of Recreation		Urban Recreation	4
Facilities	3	Therapeutic Recreation with	
Basic Sailing	2	Developmentally Disabled	
Tripping and Orienteering	2	Persons	4
Winter Sports	2		
Camp Administration	3		
Outdoor Education for the			
Handicapped	3		
Basic Rockclimbing and			
Rappelling	2		
Leisure and Lifestyles	4		
Concepts of Leisure:			
Sociopsychological			
Perspectives	4		
Leadership and Organization			
of Wilderness Recreation	4		
Arts and Crafts for Leisure	4		

Speech-Language Pathology and Audiology Department

Robert B. Redden, Ed.D., *Associate Professor and Acting Chairman*

Associate Professor

Arlene T. Greenstein, Ph.D.

Assistant Professors

Joseph C. Aurelia, Ph.D.

Mary Florentine, Ph.D., *Director,*

Speech Communication

Research Laboratory

Leonard Israel, Ph.D.

F. Adele Proctor, Sc.D.

Clinical Supervisors

Helen Anis, *Coordinator of*
Clinical Practicum

Nilda Collazo, M.S.

Kathy Geronimo, M.S.

Susan Ross, Ed.M.

Rose Laurie Schloff, M.S.

Claudia Stellwagon, M.S.

Professional Preparation

Students in the Speech and Hearing major pursue scientific study of the processes of individual human communication. Particular emphasis is placed on speech, language, and hearing.

Aims To achieve a minimal level of clinical competence as a speech-language pathologist or audiologist, students are required to undertake study at the master's degree level. This major seeks to prepare students for professional graduate study and subsequent application for membership in and certification by the American Speech-Language-Hearing Association.

Description of Major Preprofessional preparation involves a specialized academic experience that provides study of the normal communication processes, the development and disorders thereof; evaluation procedures; and clinical techniques. The emphasis of this major is on the normal processes of communication.

A View of the Five-Year Concentration College and general education requirements include elementary courses in psychology, sociology, anatomy, statistics, education, mathematics, and science.

Required studies of the normal communication processes cover the normal development and use of speech-language and hearing with an emphasis on the normal aspects of human communication. Content areas are: 1) anatomic and physiologic bases, such as neurology, anatomy, and physiology of speech, language, and hearing mechanisms; 2) physical bases and processes of the perception and production of speech and hearing, e.g., acoustics (or physics of sound), phonology, physiologic and acoustic phonetics, and perceptual processes; 3) linguistics, sociolinguistics, and psycholinguistics.

Basic Course Requirements

I. General Requirement for All Students

Course	Q.H.	Course	Q.H.
English I & II	8	Personality	8
Human Organism	4	Electives*	44
Education & Social Science	4	Abnormal Psychology	8
Human Development I	4	Electives	28
Intro. to Educational Statistics	4		

**These electives must include: 8 QH in Educational Sociology, 4 QH in Educational Psychology, 16 QH in Liberal Arts Humanities, 4 QH in Liberal Arts Social Science, 4 QH in Education, 8 QH in Liberal Arts Math/Science.*

II. Preprofessional Major Requirements

Course	Q.H.	Course	Q.H.
Intro. to Speech and Hearing	4	Fundamental Reading	4
Basic Manual Communication	4	Professional Development	1
Anatomy & Vocal Mechanism	4	Diagnostic Techniques	4
Intro. to Special Education	4	Orientation to Clinical Practice	4
Developmental Semantics & Syntax	4	Phonemic Disorders	4
Speech Science	4	Developmental Phonology	4
Intro. to Audiology	4	Hearing Science	4
Fluency Disorders	4	Clinical Practice	4

III. Sample Freshman Year Program of Studies for all Majors in Speech and Hearing

First Quarter

English 1
Education and Social Science
Human Organism
Elective*

Third Quarter

Introduction to Speech & Hearing
Elective*
Elective*
Elective*

Second Quarter

English II
Basic Manual Communication
Elective*
Elective*

**Freshmen are encouraged to consult with their departmental advisers in choosing these electives.*

During the junior and senior years the student pursues beginning courses in: understanding speech-language and hearing disorders; evaluation skills, such as procedures, techniques, and instrumentation used to assess communication disorders; and management procedures, such as principles in therapy.

During the senior year students perform supervised introductory clinical practice in a school setting. The focus is on remediation, not on classroom teaching.

The Speech-Language-Hearing Clinic is an on-campus facility that is utilized for the delivery of clinical services. Students observe via one-way windows and closed circuit television monitors. The clinic is approved by the Professional Services Board of the American Speech-Language-Hearing Association.

The Speech Communication Research Laboratory is a facility within the Department wherein students obtain laboratory experiences in Audiology and Speech.

NUSSHA (Northeastern University Student Speech and Hearing Association) sponsors professional speakers, films, videotapes, and social activities.

Student Liability Insurance Majors in Speech and Hearing must carry liability insurance coverage. The current cost is \$15 per year.

Program Accreditation

The Education and Training Board of the American Speech-Language-Hearing Association accredits graduate programs only. The graduate program at Northeastern is currently being studied for accreditation.

The preprofessional program is accredited by the National Council for Accreditation of Teacher Education.

Certification

Following completion of the master's degree, the graduate must pass a national examination in Speech-Language Pathology or Audiology and complete a Clinical Fellowship Year, which is nine months of supervised clinical experience.

Human Services

An interdisciplinary major involving the Boston-Bouvé College of Human Development Professions and the College of Arts and Sciences

Susan E. Massenzio, *Program Director, Special Education and Rehabilitation*

Advisers

Dorothy Bickling, *Counselor Education*
Wendell R. Brown, *Foundations of Education*
John D. Herzog, *Foundations of Education*
Wilfred Holton, *Sociology/Anthropology*
Ronald J. McAllister, *Sociology/Anthropology*
Alvin Zalinger, *Foundations of Education*
Harold S. Zamansky, *Psychology*

Fieldwork Supervisors

Natalie H. Riffin, *Human Services*

Human Services

Aims This major offers students the opportunity to prepare themselves for possible careers in one of the areas broadly defined as "human services." The program is interdisciplinary. The Human Services curriculum

allows students to obtain the fundamental attitudes, knowledge, and skills that can lead to a meaningful career in the helping professions as well as to a graduate education in a variety of fields.

Students who major in Human Services prepare themselves to perform a variety of functions in public and private agencies. Through course work, two quarters of fieldwork experience, and possible co-op jobs, students have the opportunity to explore such areas as: casework services in social service and welfare agencies; therapeutic treatment programs in mental health settings; supportive counseling in community health centers; rehabilitation counseling services; sheltered workshops; parole counseling; court liaison in programs for delinquent youth; staff work in half-way houses, penal institutions, and drug treatment centers; supportive counseling for the mentally retarded; community organizing; services for the aging; administration in human services agencies; and social program research and evaluation.

Description of the Major The five basic aspects of this program beyond the college requirements are:

I. Prerequisite Courses—Courses in the areas of sociology, psychology, economics, government, and human services.

II. Core Courses—Courses in the areas of statistics, research methods, personality and abnormal psychology, social structure, group process, human services organizations, and intervention strategies.

III. Specified Electives—Three courses in poverty, minority affairs, and/or special needs.

IV. Specializations—Five courses that focus on a student's area of interest and selected in consultation with an adviser.

V. Supervised Field Experience—During the junior and senior years, students spend 300 hours in a supervised placement in a public or private agency, usually in separate experiences of 150 hours each.

A View of the Five-Year Major The Human Services major offers students the opportunity to obtain useful values and basic knowledge relating to various human services fields. Courses introducing some basic skills can help them to understand and work with a variety of helping services.

Human Services students at Northeastern have been very active in their major and helpful to each other. The Human Services Student Organization combines social and career-related activities, which in the past have included open houses, day-long conferences, and weekend retreats. A quarterly *Human Services Newsletter* is published by students and faculty.

College of Business Administration

David H. Blake, Ph.D., *Dean*

Daniel J. McCarthy, D.B.A., *Associate Dean*

Thomas E. Moore, M.B.A., *Associate Dean*

Barbara W. Reitz, M.B.A., *Assistant Dean*

Maryann G. Billington, M.B.A., *Assistant Dean (Graduate School)*

Dennis Ramsier, M.B.A., *Assistant Dean (Undergraduate Program)*

Ann Kelly Komer, B.A., *Assistant to the Dean*

Peter J. Gargano, B.A., *Administrative Assistant*

Accounting Group

Cowan Chair Research

Professor

Ronald M. Copeland, Ph.D.

Professors

Joseph R. Curran, Ph.D.

Joseph M. Golemme, M.A.,

C.P.A., *Director, Graduate*

School of Professional

Accounting (Harold A. Mock

Professor of Accounting)

Russell W. Olive, D.B.A., P.E.

Associate Professors

Robert J. Hehre, D.B.A., C.P.A.

Paul A. Janell, Ph.D., C.P.A.

Richard Lindhe, Ph.D.

Daniel C. Scioletti, J.D.

Assistant Professors

Richard L. Keith, M.B.A.

Denis M. Lee, Ph.D.

Lynn Marples, M.B.A.

Sharon M. McKinnon, Ph.D.

Stephen Tomczyk, D.B.A.

Barbara B. Vidulich, D.B.A.

Lecturers

Peggy L. O'Kelly, M.B.A., C.P.A.

Jonathan Pond, M.B.A., C.P.A.

Finance and Insurance Group

Professors

Elliott L. Atamian, D.B.A.

Wesley W. Marple, D.B.A.

Edward R. Willett, Ph.D.

Associate Professors

Lal C. Chugh, Ph.D.

John C. Edmunds, D.B.A.

(Visiting)

Gerald P. Madden, Ph.D.

Joseph W. Meador, Ph.D.

Issa E. Samii, M.B.A. (Visiting)

Jonathan B. Welch, Ph.D.

Assistant Professors

David J. Johnston, Ph.D.

Carolyn V. Kent, Ph.D.

Stephen A. Kursh, A.M.

Coleen C. Pantalone, Ph.D.

Harlan D. Platt, Ph.D.

General Management Group

Professors

Geoffrey P. E. Clarkson, Ph.D.

Carlo E. Gubellini, M.B.A.

Lyman A. Keith, M.B.A.

Robert C. Lieb, D.B.A.

Associate Professors

John Diffenbach, D.B.A.

Angelo J. Fiumara, J.D.

Robert H. Ketchum, Ph.D.

Raymond M. Kinnunen, D.B.A.

Jeanne M. Lynch, D.B.A.

James F. Molloy, M.B.A.

John A. Seeger, D.B.A.

Assistant Professors

Ellen Foster Curtis, D.B.A.

Ravi Sarathy, Ph.D.

Heidi V. Wortzel, Ph.D.

Management Science Group

Associate Professors

R. Balachandra, Ph.D.

Steven E. Eriksen, Ph.D.

Victor B. Godin, D.B.A.

Michael J. Maggard, Ph.D.

Robert A. Millen, Ph.D.

Roger N. Millen, Ph.D.

Carl W. Nelson, Ph.D.

Robert A. Parsons, M.B.A.

Mustafa R. Yilmaz, Ph.D.

Assistant Professors

Peter J. Billington, M.S., M.B.A.
Edward G. Cale, D.B.A.
Sangit Chatterjee, Ph.D.
Stavros S. Frantzis, Ph.D.
William L. Huth, Ph.D.
Paul M. Morris, Ph.D.
Erland V. Sorensen, M.B.A.
Nicholas C. Teebagy, M.A.
Savita Verma, Ph.D. (Visiting)

Human Resources Group

Professors

Richard B. Higgins, Ph.D.
John J. Morse, D.B.A. (Visiting)
Jeffrey Timmons, D.B.A.

Associate Professors

Christine L. Hobart, D.B.A.
Andre P. Priem, M.A.
Francis C. Spital, Ph.D.
Edward G. Wertheim, Ph.D.

Assistant Professors

David B. Balkin, Ph.D.
Thomas M. Begley, Ph.D.
David P. Boyd, Ph.D.
Pierre E. Du Jardin, L.C.C.S.
(Visiting)
Henry M. Frechette, Ph.D.
Timm L. Kainen, Ph.D.
Mark P. Kriger, M.A., M.S.

Paulette A. McCarty, Ph.D.
Edward F. McDonough, III, Ph.D.
William C. Ronco, Ph.D.

Marketing Group

Professors

Charles J. Collazzo, Jr., Ph.D.
Philip McDonald, D.B.A.
Robert J. Minichiello, D.B.A.
Frederick Wiseman, Ph.D.
Jehiel Zif, Ph.D. (Visiting)

Associate Professors

Dan T. Dunn, D.B.A.
Gerald Sussman, Ph.D.
Robert F. Young, D.B.A.

Assistant Professors

Patrick H. McCaskey, M.B.A.
Robert M. Schindler, Ph.D.
Maggie J. W. Smith, M.B.A.

Lecturers

Hyman Dushman, M.B.A., C.P.A.
Robert J. Kopp, M.B.A.

Professional Preparation

The College of Business Administration offers concentrations in the principal fields of business: Accounting, Entrepreneurship and New Venture Management (Small Business Management), Finance and Insurance, Human Resources Management, International Business, Management, Marketing, and Transportation and Physical Distribution Management. There is also a provision for those students who wish to design their own concentrations.

These programs are designed for men and women seeking to prepare themselves for managerial responsibility in business, government, and other organizations with the goal of developing the ability to recognize and solve problems and to understand the role of the business firm in the community, the nation, and the world.

In developing these skills, the students have the opportunity to gain not only a broad understanding of business and organizational problems through specialized courses, but also firsthand knowledge of effective solutions. Forty to sixty percent of the course work in the College of Business Administration concentrations is centered outside business to ensure a liberal education.

All concentrations are offered only on the five-year Cooperative Plan, providing most students with substantial practical experience, usually in the fields for which they are preparing.

Aims In keeping with the current trends in collegiate education, the College has adopted the following educational aims:

1. To develop attitudes and ideals that are ethically sound and socially desirable;
2. To cultivate an awareness of the social, political, and economic developments to which the business firm must adapt;
3. To develop the habits of accurate thinking that are essential to sound judgment and the habits of accurate expression that are essential to effective communication;
4. To provide an opportunity for students to develop a specialization in business in accordance with their interests and talents.

A View of the Five-Year Program The College of Business Administration offers a Bachelor of Science in Business Administration degree and has concentrations of courses in several areas. The College combines its business curriculum with courses from the sciences, humanities, and social sciences. Students must take courses in these areas to ensure a well-rounded background so valuable in the business world.

All students in the College are required to complete, in addition to their academic courses, the program of cooperative (work-study) education. This program gives the student the opportunity to challenge and reinforce in the work place the theories and techniques learned in the classroom. In a similar way, the "well, that's the way they do it in my co-op company" attitudes can be and are questioned in the classroom. This double-faceted approach enhances the whole education process and generally produces graduates with a more realistic understanding of the work place. Cooperative work assignments generally are full-time, professional positions with organizations both in the profit and not-for-profit private sector and in government. Work assignments are for six months of each year above the freshman level.

After the foundation-laying and tools-oriented course work (combined with a large number of non-business courses) of the first two years, the final three years emphasize the various functional areas of business and require students to concentrate their studies in specific areas. (Detailed descriptions of these areas follow this section.) In most of these upper-division courses the traditional lecture-and-recitation format is supplemented by problem-solving and case-study methods. Using these, students analyze actual businesses and business problems and present recommendations for possible solutions. Students are encouraged to develop the ability to think independently, to support ideas with fact and logic, and to analyze and challenge propositions. The added experience of co-op work assignments, when combined with course work, offers each student practical exposure to the responsibilities of various administrative positions as well as help in determining the kind of organization in which he or she would like to work. Special classrooms have been designed for the College to facilitate the case method of instruction.

During the 1980s, the outlook for exciting careers in Business Administration is optimistic. The challenges that business faces from the effects of foreign policy, high technology, affirmative-action regulations, and new economic policies tend to create a demand for highly trained individuals equipped to analyze the complex problems of modern-day economy.

Upon completion of the Bachelor of Science in Business Administration degree, the graduate may choose to enter the work force (many former

students have assumed full-time positions with former co-op employers) or go on to pursue higher degrees.

In general, students find that graduate schools view a B.S. degree in Business as solid preparation for graduate work, not only in business but also in public administration, health-care administration, and education administration. Law schools look favorably on the pre-legal background obtained in business school. Although the Association of American Law Schools does not recommend particular courses or curricula for prelegal students, it does advise undergraduates to build skills in comprehension and oral expression and to develop critical understanding of the institutions and values with which the law deals. Many careers in law are directly involved in the business world, either in large corporations or in private practice.

The College's curriculum offers students the opportunity to develop a broad understanding of the business environment, as well as to acquire the specific skills necessary to manage organizations in today's complex social and legal environment.

Honors Program

A place in the Honors Program of the College is extended to juniors and seniors who, at the end of the first quarter of their middler year, rank in the top ten percent of the class. These students are given preference in obtaining entrance to any of the College's honors seminars. They may also participate in a Senior Honors Thesis Project, an independent research under the careful supervision and direction of a faculty member.

The Honors Program was incorporated to

- provide opportunities to bring together the best students and faculty in stimulating courses and other academic activities,
- increase the knowledge and professional skills of outstanding students,
- enhance the employment or further educational objectives of gifted students,
- develop increased respect in academic and professional communities for the College's students and programs, and
- facilitate course and curriculum experimentation into new and uncharted areas.

Any Honors Program student who completes twelve quarter hours of honors-level work at a B average or higher will receive special recognition of this achievement on both the diploma and the transcript.

Graduation Requirements

Students may qualify for the degree of Bachelor of Science in Business Administration in one of the following areas of concentration: Accounting, Entrepreneurship and New Venture Management, Finance and Insurance, Human Resources Management, International Business, Management, Marketing, Transportation and Physical Distribution Management, or Non-Concentration (self-designed).

Candidates for the Bachelor of Science degree must complete all of the prescribed work of the curriculum in which they seek to qualify. This presently totals 176 quarter hours of credit. The degree conferred not only represents the formal completion of selected courses of study, but also indicates professional study in the designated area of concentration. An overall average grade of C and a C average in required courses are necessary for graduation.

Students must be enrolled in a full program of studies in the College of Business Administration during the final three quarters immediately preceding graduation.

Graduation with Honors Candidates who have achieved superior grades in their academic work will be graduated with honor. Upon special vote of the faculty, a limited number of this group may be graduated with high honor or with highest honor. Students must have been in full-time attendance in the Basic Colleges of the University at least six quarters before they can become eligible for honors at graduation.

Accreditation

The undergraduate program of the College of Business Administration is fully accredited by the American Assembly of Collegiate Schools of Business, indicating that the program meets the accrediting agency's standards for faculty and student quality, curriculum design, and overall University support.

Curriculum

The following sample freshman-year program and the basic course requirements for the College of Business Administration are the same for all concentration areas.

Sample Freshman-Year Program of Studies in the College of Business Administration

First Quarter

Introduction to Business
Math
Non-Business Elective
Economics (Macro)

Third Quarter

Accounting II
English Literature
Non-Business Elective
Economics (Micro)

Second Quarter

Accounting I
Quantitative Methods in Business
English Composition
Non-Business Elective

Students who will complete the Reserve Officer Training Course are permitted to drop one elective each quarter of their senior year. Individual ROTC courses carry no credit toward graduation.

The College of Business Administration has no physical education requirement. Students wishing to take courses in physical education may take a maximum of eight quarter hours as elective credits.

Basic Course Requirements

Course	QH	Course	QH
Fundamentals of Math	4	Introduction to Marketing	4
Quantitative Methods in Business	4	Statistics I & II	8
English	8	Introduction to Data Processing	4
Introduction to Business	4	Organizational Behavior	4
Accounting I & II	8	Complex Organizations	4
Economics (Macro)	4	Operations Management	4
Economics (Micro)	4	Business and Society	4
Introduction to Finance	4	Business Policy	4
		Nonbusiness Electives*	44
		Open electives	32

**For International Business majors: 8 Q.H. of this total must be from the International list.*

Accounting Concentration

Professional Preparation



Aims If you are anticipating a career in accounting, your interests probably lie within one of its two major areas: industrial accounting and public accounting. To enable you to obtain some of the professional background necessary to enter these fields, the College of Business Administration offers a variety of financial accounting and managerial accounting courses.

Preparation for a career in accounting encompasses a broad range of activities. These include all phases of record keeping, internal and external reporting, financial planning, cost control, the design and installation of systems and procedures, the application of electronic and other modern business methods to these activities, and managerial decision making.

Accounting is a fast-growing and critical area of business. It is an exacting field that requires men and women who enjoy dealing with facts and figures as well as with people. It requires accuracy and an ability to reason and to interpret business data.

A View of the Five-Year Concentration During your first two years, you will have the opportunity to develop communicative and analytical abilities, to gain an understanding of the nature of accounting, and to survey business as a dynamic institution in an economic setting. Another important activity will be consultation with your coordinator from the Department of Cooperative Education about future work assignments.

Subjects in your third year will include courses in the various functional areas of business (marketing, finance, operations, personnel), statistical analyses, and economic activity.

Whether your choice of employment is in the industrial accounting or public accounting area, you will have the opportunity to prepare through specialized courses in your third and subsequent years. Subjects will include cost accounting, accounting theory, planning and control, auditing, and taxes.

In addition to the sample freshman-year program and basic course requirements listed on page 112, students who concentrate in accounting are required to take the following courses:

II. Professional Requirements

Course	Q.H.
Intermediate Accounting	
I, II, & III	12
Cost Accounting I & II	8
Accounting Theory and Practice or Accounting Planning and Control	4

Entrepreneurship and New Venture Management Concentration

Professional Preparation

Aims The concentration in Entrepreneurship and New Venture Management (Small Business Management) offers students who plan to operate their own businesses an opportunity to develop skills necessary for the effective management of small enterprises.

Description of Concentration Have you ever thought about starting, acquiring, and operating your own business? Will you be faced with an opportunity to join a family business upon graduation? Have your views of or experience with large corporations made you think about life in a smaller organization? Or do you think you would get a real kick out of working for a small company and wish to learn more about opportunities with smaller firms?

Are you considering a career in sales management, banking, public accounting, management consulting, or other areas that may involve you directly with owners and managers of new and small companies? For example, a bank loan officer, sales manager, or CPA would often have many entrepreneurs and small-company officers as clients.

If your answer to any of these questions is yes, then you are probably a member of a unique and growing portion of Northeastern students and young people everywhere whose career definition of "doing your own thing" encompasses self-employment or work in a small company or other organization.

A concentration in this field offers you a thorough "start-to-finish" perspective. The concentration provides courses that deal with each of these key questions:

1. What are the characteristics of people who start their own companies, and what does it take to start and build a new business?
2. What are some key sources of business opportunities, and how does one assess feasibility of a particular venture?
3. What sources exist for raising seed capital, and how does one acquire it?
4. What are the critical problems and opportunities in successfully managing a smaller company and what managerial methods are appropriate to deal with these?
5. What are the key issues in financing and managing an ongoing, growing venture, and how can these be applied to small ventures?

A View of the Five-Year Concentration Courses in this concentration benefit students in several ways. They offer the opportunity to develop an ability to assess personal aptitude and potential for small business, to find and evaluate business opportunities, to secure adequate funding, and to organize and manage the various facets of the small business—marketing, finance, control, and personnel.

Entrepreneurship and New Venture Management presents students with the opportunity to prepare for a career in which they can be involved in the management of a business while maintaining a significant degree of autonomy and independence. Some students will enter this career at graduation or sometimes even before. However, many find that they obtain their first experience through cooperative work and postgraduate employment prior to establishing their own enterprises.

The freshman-year program of studies and the basic course requirements for the College of Business Administration are the same for all the concentration areas. See page 112.

II. Professional Requirements

Course	Q.H.	Course	Q.H.
New Venture Creation	4	Management of Smaller Enterprises	4
Opportunity Analysis & Venture Capital	4	Small Business Institute	
Small Business Finance	4	Field Project	8

Finance and Insurance Concentration

Professional Preparation

Aims The objective of the Finance and Insurance concentration is to train students for the financial management of businesses, nonprofit organizations, and governmental units. Preparation is two-fold: students are offered *information* about current practices, theories, and concepts of financial management and have the opportunity to gain *experience* in analyzing situations that require financial decisions.

Description of Concentration Almost every phase of economic activity involves aspects of financial management—of cash or other funds and of economic resources available to the individual, the business, or other economic unit.

Perhaps you can visualize your future career in one of the many areas of funds management: security analysis, estate planning, corporate finance and control, financial planning, security or insurance brokerage, underwriting, credit management, and banking. If so, you should consider the Finance and Insurance Concentration.

There are also career possibilities in specific financial institutions that perform indispensable services for present-day business and industry. Among these are banks, insurance companies, investment houses, credit concerns, financial service institutions, mortgage companies, and national and local real estate brokerage firms and appraisers.

Career openings can be sought in all areas of business, industry, and government, where financial planning and operation are vital.

A View of the Five-Year Concentration As a middler, you will take Introduction to Finance and beginning courses in other business fields. Following the introductory course, your required courses are Managerial Finance, Investment Management, and Money and Business Activity. Besides these required courses, many electives are available, including Securities Markets, Small Business Finance, Management of Financial Institutions, and Insurance. In addition, an independent study often may be an appropriate elective.

Specialization occurs in your upperclass years as you take advanced courses in insurance, investments, security markets, and basic business finance. To provide you with a well-rounded education, other courses are available, particularly in the broad area of economics.

All courses offered by the Department of Finance and Insurance are open to students in any concentration provided they have taken the prerequisite subjects. Instructors may waive prerequisite courses in special circumstances.

Subfields

Managerial Finance The two objectives of the finance function in the contemporary corporation or business entity include:

1. Providing needed funds on terms that are the most favorable in view of current planning;
2. Regulating the flow of funds to maximize the realization of objectives.

The key concerns of financial management are the capital structure of the business and the optimal manner in which its assets should be held. With only minor differences, these same broad objectives apply to the finance function of nonprofit organizations, including those in the public sector (units of government).

Management of Financial Institutions This area of specialization is broadly based within the subject area and is applicable to a variety of financial institutions and positions within them.

The three major topics of consideration in this area of specialization are:

1. The institutional structure of the financial system and the relation between it and the surplus and deficit units of the whole economy;
2. Asset, liability, and capital management problems of financial intermediaries;
3. Investment analysis and portfolio management policies appropriate to different financial intermediaries.

Investment and Management Analysis Two benefits result from studying this concentration. First, students can gain a general understanding, which may help them manage their own affairs. Second, those seeking professional careers in organizations where the investment function is paramount (industrial and utility corporations, real estate developments, financial institutions, and many governmental agencies are a few examples) will find this subfield of great assistance.

The concentration offers preparation in the specialized skills and principles that can benefit students who are interested in careers as investment managers or security analysts in the following organizations:

1. Stock exchanges, investment advisory firms, brokers-dealers, underwriters, mutual funds, and other investment companies that are a part of the securities markets;
2. Insurance companies, commercial banks, savings and loan associations, trust companies, mutual savings associations, and organizations involved in the activities of the securities markets; or
3. Federal and state governmental agencies such as the SEC, FDIC, Treasury Department, IRS, and others having regulatory responsibilities regarding the securities markets and their participants.

Insurance and Risk Management Risk management is the process of identifying, measuring, evaluating, and treating important risks. It is a relatively new, but growing, part of the management function in business as well as in government and other nonprofit organizations. Insurance is an important method of risk financing in all organizations, including the family unit. Some individuals may study one or a few courses in insurance and risk management to broaden their understanding of this area in order to better manage their personal affairs or to familiarize themselves with this area as part of their general management preparation. Others may wish

to specialize in this area and seek careers in the risk management function in business: as managers of corporate employee benefits programs; or as managers, adjusters, or underwriters in life insurance companies, property and liability insurance companies, insurance brokerage firms, insurance agencies, independent adjusting firms; or in a number of other careers in this vast field.

The freshman-year program of studies and the basic course requirements for the College of Business Administration are the same for all the concentration areas. See page 112.

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Managerial Finance	4	Investment Management	4
Money and Business		Finance Electives	12
Activity	4		

Human Resources Management Concentration

Professional Preparation

Aims Human resources management, which focuses on the effective utilization of people at work, is an extension of personnel and labor relations but includes more than the traditional areas of recruitment, selection, compensation, and training. A human resources manager also must be knowledgeable about manpower planning, equal employment opportunity laws and affirmative action procedures, organizational development, career planning, job design and motivation, leadership, and communications. The ultimate goal of human resource managers is to provide an organization with the people who will be most effective in their jobs.

Description of Concentration In recent years there has been a growing interest in the quality of the employee's work life and its relation to the efficient production of goods and services. Companies such as Procter and Gamble, AT&T, General Motors, and Burlington Mills, as well as a growing number of organizations in the public sector, are paying more and more attention to the quality of human performance at work and the level of human contributions to output. At a time when financial resources and investment capital are becoming scarcer, many organizations are beginning to take a closer look at the management of their people, their most precious resource. In recognition of this growing interest, Northeastern University's College of Business Administration offers an undergraduate concentration in Human Resources Management.

The effective management of human resources calls for a joint partnership among such organizational specialists as personnel administrators, labor relations negotiators, wage and salary analysts, and operating line managers in the various functional areas (marketing, finance, production) of the company. As the traditional role of personnel administration is expanded to include affirmative action programs, job enrichment, and or-

ganizational development activities, career opportunities in the fields of labor relations and personnel administration are likely to expand in both the public and private sectors.

For the student whose career aspirations lie in fields other than personnel and labor relations, one important point should be made: human resources management is not a specialized activity confined to the personnel department. Whether you start your career as a work-flow analyst in manufacturing, a customer service assistant in marketing, a field auditor in the accounting department, or a hospital unit manager, you will be required to demonstrate skills in working with individuals and groups to achieve desired results.

A View of the Five-Year Concentration Human resources management is practiced not only by specialists in the area of personnel and labor relations, but also by line managers and specialists in many other business areas. The Human Resources Management concentration is structured to expose students to all major functions of personnel administration and labor relations.

II. Professional Requirements

Course	Q.H.	Course	Q.H.
People and Productivity	4	Reward Systems	4
Personnel Administration	4	Human Resources Management Electives	8
Contemporary Labor Issues	4		

International Business Concentration

Professional Preparation

Aims In recent years, several factors have contributed to a rapidly increasing need for qualified people in the field of international business. The growth of multinational firms, international trade, and regional international trading blocs has created a shortage of skilled managers who are equipped to analyze the complexities of international business problems.

The International Business Administration concentration offers students the opportunity to prepare themselves to meet these management needs. It offers the opportunity to develop an understanding of problems involved in operating business enterprises across national boundaries and to develop the ability to analyze the operations of businesses in multinational environments.

The curriculum consists of: a broad education provided by course requirements in arts and sciences; a basic business education provided by business administration core requirements; and a specialized education in International Business.

Description of Concentration The International Business concentration consists of six courses. Two of them are required: Introduction to International Business and Seminar in International Business. There are also four electives: two from the International Business curriculum and two Busi-

ness Electives. In addition, two of the non-business electives must be chosen from the International List (see page 119–120.)

When you enroll in the International Business concentration, you will find that its structure is flexible, permitting you to have a dual concentration. For example, you may concentrate in International Business and use open electives to fulfill the requirement of a second concentration. The dual concentration has advantages for those seeking employment opportunities in traditional functional areas (e.g., production, marketing, finance), which also take place in an international setting. All College of Business Administration courses that are offered as part of the International Business Administration concentration are available to students in other concentrations during their middle, junior, and senior years.

A View of the Five-Year Concentration Careers in international business are best pursued in companies that carry on trade or manufacturing operations in foreign countries. An increasing number of multinational firms require that candidates for their top management positions have prior experience in international operations. In addition, large banks and insurance companies want their managers to understand international business. Other types of organizations—government, trade associations, large unions—require international business knowledge. The opportunity for foreign travel in any of these capacities is frequently available.

Students who choose this concentration have the opportunity to gain an understanding of the economic, political, and social constraints on international business and to develop skills in analyzing the financial, marketing, and operational strategies of the multinational firm.

Arts and Sciences electives such as modern languages, political science, international economics, geography, and cultural anthropology—all appropriate to the understanding of international relations—are highly recommended to complement this concentration.

The freshman-year program of studies and the basic course requirements for the College of Business Administration are the same for all the concentration areas. See page 112.

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Introduction to International Business	4	Business Administration Electives (International List)	8
Seminar in International Business	4	Business Electives	8

International Electives

Business List*

- 41.160 International Accounting
- 43.261 International Marketing
- 44.160 International Financial Management
- 46.102 Comparative International Management
- 46.103 Environmental Pressures and the Multinational Corporation
- 48.110 International Transportation and Distribution Management

Non-business List*

(Note: This is a representative listing; other Liberal Arts courses may be taken upon approval by the Area Coordinator for the International Business concentration)

- 20.130 Language and Culture
- 20.135 Individual and Culture
- 20.140 Evolution and Society
- 20.170 Culture in Transition
- 20.250 Political Anthropology
- 20.255 Economic Anthropology
- 20.270 Social Change and Economic Development
- 21.116 Environment and Society
- 22.112 Introduction to International Relations
- 22.113 Introduction to Comparative Politics
- 22.151 Comparative Government
- 22.179 World Politics
- 22.220 The Politics of Imperialism
- 22.221 International Relations
- 22.223 American Foreign Policy
- 22.231 International Organization
- 22.233 International Law
- 23.123 Europe Since 1921
- 23.128 Modern France
- 23.129 Modern Germany
- 23.137 England Since 1900
- 23.141 Soviet Russia
- 23.145 The Modern Middle East
- 23.151 Modern Africa
- 23.170 Modern Far East
- 23.171 The Far East Since 1945
- 23.172 Recent Leaders of Asia
- 23.182 Modern European Economic History
- 23.277 Modern Latin America
- 25.222 Third World Political Relations
- 26.279 Issues in Contemporary Islam
- 27.144 Latin American Art
- 27.182 Oriental Art II
- 32.201 Spanish for Business
- 33.201 German for Business I
- 33.202 German for Business II
- 39.150 Economics of World Energy and Primary Resources
- 39.155 Superpower Economics
- 39.259 European Economic Development
- 39.261 Economic History of Less-Developed Countries
- 39.280 Comparative Economics
- 39.285 Economic Development
- 39.286 International Economics

**These courses are not offered every year. Students are advised to consult pre-registration material.*

Management Concentration

Professional Preparation

Aims Do your career interests lie in the broad area of administration rather than in specialized fields? The Management concentration offers you the opportunity to prepare yourself for a wide variety of administrative careers in business, government, and nonprofit institutions.

Description of Concentration As a Management student you must have a basic understanding of all organization functions: accounting, marketing, finance, and operations. Your courses in these areas offer you an overview of these areas, including their interrelation and the ways they can be used as management tools. For example, your study of accounting can be used as a helpful tool in the decision-making process, rather than as a specialty in itself. A similar approach is used in courses in other areas.

Since management is the process of getting things done through people, your professors pay significant attention to "people problems" to stress the importance of developing an effective work force.

The courses in the Management concentration vary considerably in content and method of instruction because they vary in their objectives. In most, students are heavily involved in the conducting of classes and are required to work on group assignments. The purpose of this participatory approach is to help prepare you for the demands of management in the business community.

A View of the Five-Year Concentration The curriculum and teaching methods center around the development of basic skills and knowledge appropriate to administration, rather than upon specialized functional techniques. Although the case method of study is used extensively, a variety of teaching methods consistent with particular course objectives is employed. The basic objectives of the concentration are to confront the student with appropriate learning experiences, to help increase students' skills and knowledge in basic disciplines underlying administrative practice, and to help students develop judgment and skills in organizational problem analysis and decision making.

The freshman-year program of studies and the basic course requirements for the College of Business Administration are the same for all the concentration areas. See page 112.

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Cost Accounting for Management	4	Legal Aspects of Business	4
People & Productivity	4	Business Electives	12



Marketing Concentration

Professional Preparation



Aims A business organization not only designs and manufactures products, but also markets and sells them to manufacturers, wholesalers, retailers, and consumers. This is what a concentration in marketing is all about.

Description of Concentration All the business activities that direct the flow of goods and services from producer to consumer are classified as marketing concerns. The marketing process begins by determining the needs and wants of customers. Once these wants and needs are established, the organization's first objective is to produce goods or services to satisfy a particular consumer. Essential in all types of business are such activities as product design, research, pricing, packaging, transportation, advertising, selling, and servicing. The overall responsibility for these functions rests with the marketing manager.

The Marketing Concentration offers a wide variety of courses, taught by lecture and class discussion. Included are such courses as Marketing Management, Advertising, Sales Management, Consumer Behavior, and Competitive Strategy.

A View of the Five-Year Concentration Outside the classroom, students may attend weekly meetings of the American Marketing Association Student Chapter, through which they may further their interests by discussing issues with leaders in the field.

Without successful marketing and advertising, industrial products remain unsold. More and more companies are finding that today's tempo of progress and high levels of production require up-to-date marketing techniques to generate a higher sales volume.

As members of the management policy group, marketing executives take a broad view of all aspects of business management and policy. They also serve effectively as trained specialists in their own areas.

Success in the market is vital to every company, whatever its size. Therefore, the need for adaptable and informed marketing management exists in all types of business and industry.

The freshman-year program of studies and the basic course requirements for the College of Business Administration are the same for all the concentration areas. See page 112.

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Marketing Management	4	Competitive Strategy	4
Marketing Research	4	Marketing Electives	12

Transportation and Physical Distribution Management Concentration

Professional Preparation

Aims Transportation is an integral part of national and international distribution systems. It is a determining factor in the availability and prices of goods and services in our economy.

In corporate distribution, transportation specialists operate within a complex organizational framework in which goods are stored and moved. Effective management of this distribution process involves understanding inventory control, warehousing, transportation options, and the interaction of these activities with other functional operations.

Growing concern with the economic and service conditions of the transportation industry has also created career positions with government agencies engaged in transportation policy development and administration. Other career possibilities are to be sought with carriers such as airlines, railroads, and trucking companies, which actively seek people who are familiar with the operational and regulatory aspects of their business.

The Transportation and Physical Distribution Management concentration offers students opportunities to prepare for these diverse career opportunities.

Description of Concentration The concentration offers the student a balanced background in Transportation and Physical Distribution Management. Courses consider not only the viewpoint of the corporate shipper and carriers, but also those of public officials, in addition to consumer interests. Courses have a strong contemporary orientation and promote frequent interaction with practitioners from business and government.

A View of the Five-Year Concentration Course offerings in Transportation and Physical Distribution Management are sequential so that students who desire only an introductory exposure may take one or several courses as part of a broader business background. An undergraduate concentration in the area consists of six courses. Four are required courses, with the balance of the concentration composed of electives.

The freshman-year program of studies and the basic course requirements for the College of Business Administration are the same for all the concentration areas. See page 112.

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Principles of Transportation	4	Seminar in Transportation	4
Physical Distribution Management	4	Transportation Electives	8
Current Issues in Transportation Policy	4		



Non-Concentration (Self-Designed)

Professional Preparation

Aims Because innovation and relevance are key words in the College of Business Administration, the Non-Concentration curriculum is adaptable to each student's needs. Meeting with an academic adviser, you tailor your academic program to meet your own career goals.

Description of Concentration Students will be required to select a total of at least six business electives beyond the basic course requirements.

The freshman-year program of studies and the basic course requirements for the College of Business Administration are the same for all the concentration areas. See page 112.

II. Professional Requirements

Course	Q.H.
Business Electives	24

College of Criminal Justice

Norman Rosenblatt, Ph.D., *Dean*

Robert D. Croatti, *Associate Dean*

Lester W. McCullough, Jr., *Assistant Dean*

James R. Reed, *Assistant Dean (on leave)*

Robert E. Fuller, *Assistant to the Dean*

Professors

Frederick Cunliffe, Ph.D.

Romine R. Deming, Ph.D.

Theodore N. Ferdinand, Ph.D.

Edith E. Flynn, Ph.D.

Robert R. J. Gallati, S.J.D.

Joseph J. Senna, M.A., D.Jur.

Robert Sheehan, M.A., D.Jur.

(Honorary)

Assistant Professors

James A. Fox, Ph.D.

John H. Laub, Ph.D.

Nicole F. Rafter, Ph.D.

Frank A. Schubert, D.Jur.

Wallace Sherwood, L.L.M.

Professional Preparation

Aims Established in 1966 under a grant from the Ford Foundation, the College of Criminal Justice offers students the opportunity to prepare for professional careers in the field of criminal justice. The curriculum has been designed primarily for students interested in careers in the areas of criminal justice services, including law enforcement, private security, corrections, and rehabilitation. It is also expected that a number of graduates will choose advanced study in academic fields such as criminology, forensic science, social work, public administration, and law, as well as in the entire area of Criminal Justice.

This College was founded to help prepare students to meet significant social problems of our times. To cope with these problems, innovative methods and ideas, as well as basic information, are needed by those involved in community and social services. As part of its educational role, the College has received substantial grants from the Department of Justice and was designated as a center of education and innovation in the field of criminal justice and forensic science, as well as a Training Center in Criminal Justice.

A View of the Five-Year Program The College of Criminal Justice offers a five-year academic program on the Cooperative Plan of Education, which allows a candidate for the baccalaureate degree to undertake a specialized program of study. It is anticipated that "co-op" assignments will include work in parole, law offices, private security agencies, and social agencies.

Students are offered a broad educational background for future roles in criminal justice. Because students are preparing for careers involving the social problems of people from all walks of life, course work in the social sciences, behavioral sciences, and the humanities is integrated with professional courses. The liberal content of the curriculum is highly desirable not only for its value as a foundation upon which general intellectual development may be based, but also as an indispensable educational requirement for professional service in the criminal justice field.

Graduates must be prepared to judge objectively the many socioeconomic problems inherent in the administration of justice in contemporary American society. The College of Criminal Justice helps to prepare students for a career that will be not only personally productive and rewarding, but intellectually stimulating as well.

Graduation Requirements

Candidates for the Bachelor of Science degree must complete all the prescribed work of the curriculum, a total of 172 quarter hours' credit.

Students who undertake the Cooperative Education Program must meet the requirements of the Department of Cooperative Education before they become eligible for their degrees.

No student transferring from another college or university is eligible to receive a degree until at least one year of academic work immediately preceding graduation has been completed at Northeastern.

Graduation with Honors

Candidates who have achieved superior grades in their academic work will be graduated with honors. Upon special vote of the faculty, a limited number of this group may be graduated with high honors or with highest honors. Students must have been in attendance at the University for at least three years before they become eligible for honors at graduation.



Sample Freshman-Year Program of Studies in the College of Criminal Justice

First Quarter

English
Economics
Introduction to Sociology
History of Criminal Justice I

Second Quarter

English
Foundations of Psychology
Introduction to Politics
History of Criminal Justice II

Third Quarter

Economics
Foundations of Psychology
Introduction to American Government
Administration of Criminal Justice

In addition to the above courses, students may elect to take Basic ROTC.



Basic Course Requirements

I. General Requirements

Course	Q.H.	Course	Q.H.
Principles and Problems of Economics*	8	Introduction to Sociology*	4
Introduction to Politics*	4	Freshman Writing*	4
Introduction to American Government*	4	Introduction to Literature*	4
Foundations of Psychology I & II*	8	State and Local Government†	4
		Science or Math	8
		Non-CJ electives (14)	56

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Administration of Criminal Justice*	4	Constitutional Problems Criminal Justice	4
Topics in History of Criminal Justice*	8	Electives (9)	36
Criminology	4	Statistics	4
Criminal Law	4	Research Methods	4

*Courses are usually taken in the freshman year.

†Course is usually taken in the sophomore year.

College of Engineering

Harold Lurie, Ph.D., *Dean*

Thomas E. Hulbert, M.S., *Associate Dean*

Ralph S. Blanchard, M.S., *Associate Dean*

David C. Blackman, M.S., *Assistant Dean and Director of
Minority Affairs*

Bradford C. Perry, M.Ed., *Director of Student Services*

Thomas J. Kerr, Ph.D., *Acting Assistant Dean and Acting Director
of Graduate School*

Professional Preparation

The College of Engineering prepares students to participate constructively in a technologically changing world, thus contributing as professional engineers to the accumulation and application of new knowledge. Fundamentals are emphasized, thus offering students the opportunity to obtain the basic technical knowledge necessary to practice in a variety of positions. At the same time, study of the social sciences and humanities provides an awareness of the social, economic, political, aesthetic, and philosophical influences that are part of the context in which students will practice their professions.

Aims The concept of education as a continuing, lifelong process necessary for effective work in an environment of constantly new facts, ideas, and scientific principles underlies the whole structure of the engineering curriculum.

Engineering education is directed toward assisting students to:

1. Understand the scientific principles and knowledge of a particular branch of engineering selected;
2. Comprehend and develop competence in the engineering method and its application;
3. Communicate effectively and succinctly the important results of any technical study both verbally and graphically;
4. Acquire the motivation for continuing professional growth.

Day Cooperative Programs

The College offers five-year cooperative programs in Civil, Mechanical, Electrical, Chemical, and Industrial Engineering leading to the degree of Bachelor of Science with specification according to the engineering department in which the student qualifies. The College also offers a General Engineering Program, which leads to the awarding of an unspecified Bachelor of Science degree, through which students have the opportunity to design a curriculum suited to their objectives. The College of Engineering awards, on a joint basis with the College of Arts and Sciences, a Bachelor of Science degree in Computer Science. The various curricula offer students the opportunity to prepare effectively for employment in industry or post-graduate study.

Under the six programs, several options or specialized concentrations are available:

Electrical Engineering—Power Systems Option To meet the needs of the rapidly expanding electric power industry, Northeastern has a special program in Power Systems Engineering. This program is offered on the Cooperative Plan and can lead to both a bachelor's and a master's degree in six years. The subject matter is basically that of electrical engineering augmented by work in power systems analysis, computers in power sys-

tems, nuclear plant considerations, power system planning, protection and stability, and MHD and DC transmission.

Civil Engineering—Environmental Option This option is designed for engineering students intending to work in the field of environmental protection and improvement. Topics included at the undergraduate level are water supply, treatment and wastewater disposal, solid waste disposal, and air pollution. The cooperative program, leading to a bachelor's degree in civil engineering in five years, offers students the opportunity to enter immediately a professional practice in government agencies, industry, or private consulting firms, depending on the job market as well as their own industry and abilities.

Computer Studies The computer, virtually nonexistent thirty years ago, has spawned several of the fastest-growing professions in the world. The demands for people educated in the design and use of computers have reached unprecedented levels in recent years. The College of Engineering offers two computer-oriented undergraduate programs of study.

Under Electrical Engineering, the Computer Engineering option is concerned with the design of digital computers and their integration within larger systems for communications, resource management, and automatic control. The computer engineering team for a large computer-system development project includes computer architects, software engineers, microprogrammers, logic designers, and electronics engineers. On the other hand, the computer engineer may have sole responsibility for all of these activities during the development of a microprocessor-based instrument or controller. Further details on this program are discussed on page 131, in the section devoted to the Department of Electrical Engineering.

Through the College of Engineering and the College of Arts and Sciences, Northeastern awards a Bachelor of Science degree in Computer Science. Professionals involved in this area include programmers, systems analysts, applications professionals, and software development professionals. More information on this degree may be obtained by writing to the Department of Admissions.

Graduate programs of study in Computer Science and in Information Systems are offered by the Departments of Electrical Engineering and Industrial Engineering. These programs are described fully in the Graduate School of Engineering catalog, which can be obtained by writing to the School's director at 409 Churchill Hall.

Five-Year BS/MS Programs

Several majors (Electrical, Mechanical, and Engineering Management) offer programs leading to both the Bachelor's and Master's degrees in five years. Students with outstanding academic records (3.0 or better) may begin carrying extra courses in the third year. In the senior year, these students forego one cooperative work quarter and attend school full time to complete the course requirements for both degrees.

Part-time Program Offered During Evening Hours

The College of Engineering also offers an eight-year, part-time curriculum leading to the degree of Bachelor of Science in Electrical, Mechanical, or Civil Engineering. Classes are held in the evening. Admission and course requirements are the same as for the degree program offered under the Cooperative Plan. For further information, consult the evening bulletin of the College of Engineering, or call the Dean of Engineering's office.



General Description of Programs

The undergraduate academic program begins with three quarters of full-time study. Course work during the first year helps to build students' understanding of mathematics and the physical sciences and to improve their ability to communicate ideas both verbally and graphically.

Since the first year of study is nearly identical for all students in the College, the choice of specialization may be changed at the end of the freshman year without loss. The freshman courses act as a foundation for upperclass studies and assist students in developing basic understanding of concepts in the engineering sciences and introduce them to the engineering method and its application. About four-fifths of the upperclass program is devoted to scientific and technological study, and about one-fifth to humanistic-social courses, with the aim of balancing the students' growing technical proficiency with an appreciation of the nontechnical aspects of society and culture.

Cooperative work in the chosen branch of engineering begins upon completion of the freshman year and continues throughout the remaining upperclass years. The work assignments during this time may be most valuable in helping to integrate the important elements of both an engineering and a liberal arts education. They can also be instrumental in teaching the value of teamwork while, at the same time, helping the student to acquire insight into the problems of actual engineering practice.

Graduation Requirements

Degrees The College awards the Bachelor of Science degree in Chemical, Civil, Electrical, Industrial, and Mechanical Engineering, as well as the Bachelor of Science degree without specification.

Qualification for Degrees Candidates for the Bachelor of Science degree must complete all of the prescribed work of the curriculum in which they seek to qualify with no academic deficiencies. Students who undertake cooperative work assignments must complete a minimum of four quarters of cooperative work experience approved by the Department of Cooperative Education.

Students transferring from another college or university are not eligible to receive the Bachelor of Science degree until they have completed at least one academic year at Northeastern immediately preceding their graduation.

Graduation with Honors

Candidates who have attained superior grades in their academic work will be graduated with honors. Upon special vote of the faculty, a limited number of this group may be graduated with high honors or with highest honors. Students must have been in attendance at the University at least six quarters before they may become eligible for honors at graduation.

Accreditation

All undergraduate day programs with specification, as well as the College of Engineering's part-time evening program in Civil and Electrical Engineering, are accredited by the Accreditation Board for Engineering and Technology (ABET) (formerly the Engineer's Council for Professional Development).

Women in Engineering

Recognizing its opportunities, more women are entering the field of engineering every year. Aware of their qualifications and potential, industry and government provide positions of responsibility for competent women en-

gineers. Any woman with scientific or technical interests should consider the many possibilities offered in engineering.

Women currently account for almost 10 percent of engineering freshmen. Women in engineering are represented with a chapter of the Society of Women Engineers, which offers a full schedule of technical and professional programs.

Minorities in Engineering

Through its Progress in Minorities in Engineering (PRIME) program, the College seeks to expand educational opportunities for qualified blacks, Puerto Ricans, Mexican-Americans, and American Indians. It can provide scholarships based on merit and/or need. Every effort is made to provide enough aid so that outside work is not necessary during the freshman year. Guidance counseling and tutorial services are among the support services provided by the program.

For more details, contact David C. Blackman, Assistant Dean, Minority Affairs; 400 Churchill Hall, Northeastern University, Boston, Massachusetts 02115.

Sample Freshman-Year Program of Studies in Engineering

The freshman-year program of studies in the College of Engineering is the same for all designated majors in the College.

First Quarter

FORTRAN Programming
Calculus
Physics
English

Third Quarter

Calculus
Physics
General Chemistry
English

Second Quarter

Graphics and Design
Calculus
Physics
General Chemistry

The first-year pattern of two-term courses may vary according to assigned section.

In addition to the above courses, students may elect to take Basic ROTC.

Chemical Engineering Department

Ralph A. Buonopane, Ph.D., *Associate Professor and Acting Chairman*

Professor

John A. Williams, Ph.D.

Associate Professors

Bernard M. Goodwin, Sc.D.

Richard R. Stewart, Ph.D.

Professional Preparation

Aims Since the field of chemical engineering is so varied, the program of study has been designed to offer students broad training in which fundamental principles are stressed, thus providing them with the opportunity to develop the ability to acclimate themselves readily to graduate school or to an industry of their choice. The faculty stresses the principles of environmental control, conservation, and technology assessment to emphasize the importance of the engineer's role in society.

Description of Major The chemical engineer has been defined as a "professional experienced in the design, construction, and operation of plants in which materials undergo chemical and physical change." It is the task of the chemical engineer to reduce the costs, increase the production, and improve the quality of the products in the industry.

Chemical engineering has grown out of discoveries in the chemical laboratories which have served as a foundation for a great many new industries whose production processes involve chemical as well as physical changes.

Petroleum refining, plastics, manufacture of synthetic fibers, and hundreds of other industries require men and women trained in chemistry as well as in engineering. Moreover much of the training received by the chemical engineer is now being applied to the rapidly developing fields of nuclear engineering, energy, space engineering, and environmental controls. In order to benefit mankind by *not* contributing to pollution or waste of resources, many older industries, such as foods, textiles, paints and varnishes, and leather, are also employing chemical engineers.

A View of the Five-Year Major After students have taken the fundamental courses in chemistry, mathematics, and physics, required of all engineering students, they may go on to advanced courses which apply these fundamentals to the solution of engineering problems. These upperclass courses are a skillful blend of the latest mathematical and theoretical analyses with the practical aspects of the profession.

Chemical engineering is one of the fastest-growing major fields of engineering. Tremendous growth is occurring in research and development, especially in such fields as petroleum and chemicals (about one-third of all chemical engineers are employed in these fields).

Accreditation

The Department is accredited by the American Institute of Chemical Engineers as well as by the American Association of Engineering Societies (AAES).

Laboratories

The chemical engineering laboratories are designed to acquaint the student with the experimental approach to the solution of engineering problems and to develop research interests. Graduate research may be conducted in such areas as energy, environmental, photoreactions, process control, mathematical modeling, and computer applications.

Students are first exposed to the basic measurements in engineering in experimental methods laboratories, with emphasis on temperatures, pressure, and flow rate. Following this, they are given problems involving such areas as transport properties, kinetics, thermodynamics, and process dynamics, which they must solve experimentally. They are required to design and conduct the experiment, reduce the data using computers, and write a final report. Students use pilot-scale chemical engineering equipment in the experiment, when applicable.

The freshman-year program of studies in the College of Engineering is the same for all majors in the College. See page 131.

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
English*	8	Physics†	4
General Chemistry*	8	Physics Lab†	2
Basic Engineering*	8	Math	8
Calculus†	12	Economics	8
Physics*	12	Social Science/Humanity	
Calculus†	8	Electives (4)	16

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Organic Chemistry†	8	Experimental Methods	8
Polymer Technology†	4	Chemical Engineering	
Chemical Engineering		Thermo.	4
Calculations†	8	Chemical Engineering	
Chemical Engineering	8	Kinetics	4
Physical Chemistry	8	Design or Research	
Transport Phenomena	8	Techniques Electives	12
		Technical Electives (4)	16

*These courses are usually taken in the freshman year.

†These courses are usually taken in the sophomore year.

Civil Engineering Department

Saul Namyet, B.S., *Associate Professor and Acting Chairman*

Professors

Reginald L. Amory, Ph.D.
 Frederic C. Blanc, Ph.D.
 John J. Cochrane, Ph.D.
 Constantine J. Gregory, Ph.D.
 Kenneth M. Leet, Sc.D.

Associate Professors

Leroy M. Cahoon, M.S.
 Walter E. Jaworski, Sc.D.
 Michael Kupferman, Ph.D.
 Robert L. Meserve, M.S.
 James C. O'Shaughnessy, Ph.D.
 John G. Schoon, Ph.D.
 Richard J. Scranton, M.S.
 Irvine W. Wei, Ph.D.
 Mishac K. Yegian, Ph.D.

Assistant Professors

Barbara M. Baum, Ph.D.
 Menashi D. Cohen, Ph.D.
 Paul F. McManus, Ph.D.

Instructors

Gregory P. Broderick, M.S.
 Peter K. Hadley, M.S.
 Mikhail Schiller, M.S.
 Irwin Silverstein, M.S.
 Robert Taylor, M.S.

Professional Preparation



Aims Students in the Civil Engineering Department have the opportunity to prepare themselves for a professional career in one or several of the areas into which the field is traditionally divided: structures, environmental (water supply, wastewater disposal, air pollution), transportation, soil mechanics and foundations, and construction. A major aim of the program is to provide students with the opportunity to acquire a fundamental, flexible, and rigorous engineering education so that, in view of inevitable change within the field, graduates will be in a position to build continuously on their basic knowledge. In this manner, the program strives to alleviate problems of technical obsolescence.

Another major aim of the program is to help the student gain a broader vision of the world, of society, and of the individual than is possible in a one-sided technical program. A wide range of electives in the humanities, social sciences, and basic sciences encourages students to investigate areas outside their immediate fields and to extend their personal interests and involvements. In view of the growing problems of urban overpopulation, congestion, and pollution—and the increased social awareness of concerned individuals—the civil engineer cannot function solely within the requirements of a construction project or a client's interest. Engineers must address themselves to the larger considerations of the rights of all those affected by their planning decisions or proposed construction.

A View of the Five-Year Major The five-year work-study curriculum is divided into eleven quarters of school and eight quarters of work. The work phase is designed to allow the student to gain insight into all types of activity normally confronted by the engineer. Thus, the well-motivated student can determine from these work experiences what further course work preparation will be required to become successful as a practicing engineer. The work experience also may be valuable in stimulating a certain amount of self-support and independence.

The first years of the in-school curriculum are, for the most part, devoted to the fundamentals of math, basic sciences, and engineering that comprise the foundation for later professional studies. The final years are devoted

to a range of professional subjects, both required and elected. Guidance from a faculty adviser is available throughout the academic program.

The curriculum is thus intended to provide a firm educational background for students preparing to take up the design and construction of structures, to solve problems in the field of transportation, and to handle the design of environmental systems as civil engineers.

Upon completion of the requirements for the Bachelor of Science in Civil Engineering degree, the graduate may choose to enter the engineering profession or to go on to graduate school for advanced training. The beginning civil engineer will probably find that graduate work is a necessary adjunct for advancement.

During the first period of employment as a graduate, the civil engineer may expect to spend some time in the field or the office in work involving design computations, layout work and supervision of construction, or obtaining and analyzing information for studies and reports. With increased experience, the graduate will be better prepared to take on greater challenges and more responsibilities.

Graduates normally seek employment at municipal, state, and federal levels, in private consulting practice, general construction, and industry.

Part-Time Program

The Civil Engineering Program is also available on a part-time basis. The classes are scheduled during the evening hours, usually two evenings per week. The curriculum can be completed in a minimum of eight years.

Transfer programs for students with Associate degrees or Bachelor's degrees in Civil Engineering Technology can be arranged in either the day co-op or the part-time programs.

Research Activities

Research recently has been undertaken in a variety of areas, including 1) Characterization of Solids Behavior in and Variability Testing of Selected Techniques for Combined Sewer Systems, 2) Nitrification and Denitrification of Wastewater Using Rotating Biological Contactors, 3) Effective Length Factor for Compression Members in Frames with Trusses, 4) A Finite Difference Computer Program to Study Groundwater Flow and Seepage through Earth Structures, 5) Non-Darcy Flow through Porous Media, 6) Porous Pavement Evaluation for Surface Runoff Control, 7) Dynamic Response of Seismically Loaded Piles, 8) Establishing Optimal Directional Offsets for Traffic Signals, and 9) Equivalent Indices for Transportation of the Handicapped.

Student Professional Society

Our Student Chapter of the American Society of Civil Engineers is very active. In addition to traditional activities, which include an annual professional speaker series and field trips to civil engineering projects, members have successfully completed several significant community-service projects.

The students have developed and designed innovative and educational outdoor play exhibits illustrating both natural and man-made phenomena for the Children's Museum of Boston. They have participated, in conjunction with the Southwest Corridor Community Farming Project, in the design and construction of a solar-heated greenhouse. They have worked with staff members of the Joseph P. Kennedy, Jr., Memorial Hospital for Children in the planning, designing, financing, and construction of a special playground for handicapped children. They have designed and constructed an outdoor amphitheater for the Salvation Army's Camp Wonderland, and performed an investigation of fire evacuation procedures and building

modifications for the Cotting School for the Handicapped. Each year, at least one such community-service project is undertaken.

In recognition of these unusual efforts, our Student Chapter has been designated as the "single most outstanding" chapter in the nation and consequently has received the Robert Ridgway Award of the American Society of Civil Engineers for an unprecedented four consecutive years.

Computer Facilities

The Civil Engineering Department makes use of a variety of computer facilities to complement course work and research. Direct access to the University's computer is available through numerous remote terminals. In addition, two minicomputers are housed in the Department: a Hewlett Packard System 45 with interactive graphics and a Digital LSI-11. All systems are supported with sophisticated software packages with applications to all the disciplines of civil engineering.

Laboratories

Soil Mechanics Laboratory The soils laboratory is equipped to perform the full spectrum of soils tests, as well as to conduct model studies.

A wide variety of laboratory equipment permits students to perform tests ranging from those related to soil classification to sophisticated triaxial tests that are required to evaluate the stress-strain properties of a soil specimen. The triaxial tests can be of strain-controlled loading, stress-controlled loading, or a combination thereof. Pore-pressures measurements are made either electronically with pressure transducers or manually with null-pressure indicators.

Consolidation-test equipment of various load ranges and types is available. Consolidation tests applying loads up to 50 tsf on the sample are possible. The laboratory is equipped with a wide range of electronic devices, including pressure transducers, load cells, and accelerometers to expedite data collection.

Research with the aid of models can be conducted to study the problems associated with the design and construction of earth dams, open-braced cuts, and other similar structures. In addition, model studies on the behavior of footings or piles are possible for both static and cyclical loading conditions.

Water-Quality Laboratory Capabilities include analyses of both water and wastewater samples in physical, chemical, and biological regimes. Laboratory and supporting equipment enable complete studies in the following areas: water analysis, wastewater analysis, trace-metal and organic analysis, stream and estuary studies, waste-treatability studies, unit operations, bioassay techniques, pilot plant studies, tracer studies, and complete instrument analysis.

Instrument analysis capabilities include atomic absorption, total carbon, organic carbon, specific ions, gas chromatography, spectrophotometric, and gravimetric analyses.

Special areas are available for unit operation studies in water and wastewater treatment. A well-equipped machine shop has been established so that special equipment can be designed and built for model-prototype studies.

The Gillette Environmental Research Laboratory is available for research and development work in connection with the program in Environmental Engineering and Science.

Air Pollution Laboratory Equipment is available to sample ambient air and gaseous and particulate pollutants and to evaluate the physical, chem-

ical, and biological characteristics of atmospheric pollutants. Continuous air samples may be established in any area in Metropolitan Boston and the samples analyzed by ultraviolet-visible, fluorescence, and atomic spectrophotometry, as well as gas chromatography and infrared techniques. A portable carbon-monoxide analyzer with printout equipment is available for measurement studies and research work. Research in air pollution problems is a continuing project.

Recent equipment additions also make it possible to conduct studies in noise pollution.

Basic Course Requirements

I. General Requirements

Course	Q.H.	Course	Q.H.
English*	8	Physics†	4
Calculus*	12	Physics Lab†	2
Basic Engineering*	8	Economics†	8
Physics*	12	Math	8
Chemistry*	8	Public Speaking	2
Calculus†	8	Social Science/ Humanity Electives (5)	20

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Thermodynamics†	4	Professional Electives— 7 required	
Engineering Measurements†	6	Civil Engineering Systems	4
Structural Mechanics†	8	Structural	
Dynamics	4	Analysis II, III	8
Materials	4	Structural Design II	4
Fluid Mechanics	4	Concrete Design II	4
Electrical Engineering	4	Hydraulic Engineering	4
Soil Mechanics (w. Lab.)	6	Geotechnology	4
Environmental Engineering I	4	Foundation Engineering	4
Concrete Design I	4	Transportation	
Structural Design I	4	Analysis and Planning	4
Structural Analysis I	4	Applied Probability Theory for Civil Engineering	4
		Environmental	
		Engineering II, III	8
		Environmental Design	4
		Air Pollution	4
		Statistics	4
		Engineering Economy	4
		Construction Engineering	4
		Highway Engineering	4
		Structural Mechanics III	4
		Technology Assessment	4
		Legal Aspects of Civil Engineering	4

* Usually taken in the freshman year.

† Usually taken in the sophomore year.

The freshman-year program for the College of Engineering is the same for all majors in the College. See page 131.

Electrical Engineering Department

J. Spencer Rochefort, M.S., *Professor and Chairman*

Professors

Basil L. Cochrun, M.S.
Ladislav Dolansky, Ph.D.
Martin W. Essigmann, M.S.
James M. Feldman, Ph.D.
Kenneth I. Golden, Ph.D.
Robert A. Gonsalves, Ph.D.
Arvin Gabel, Sc.D.
John G. Proakis, Ph.D.
Harold R. Raemer, Ph.D.
Wilfred J. Remillard, Ph.D.
Sheldon S. Sandler, Ph.D.
Mulukutla S. Sarma, Ph.D.
Martin Schetzen, Sc.D.
Walter C. Schwab, Ph.D.
Michael B. Silevitch, Ph.D.
Robert D. Stuart, Ph.D.

Martin E. Kaliski, Ph.D.
Wayne G. Kellner, Sc.D.
Robert J. Lechner, Ph.D.
Walter H. Lob, M.S.
Morton Loewenthal, Ph.D.
Robert N. Martin, M.S.
Louis Nardone, M.S.
Sheila Prasad, Ph.D.

Assistant Professors

Gideon Eden, Ph.D.
Amir Farhat, Ph.D.
Kaveh Pahlavan, Ph.D.
Wai L. Tsang, Ph.D.

Instructor

George E. Assaf, M.S.

Associate Professors

Marcello J. Carrabes, M.S.
J. Duncan Glover, Ph.D.
Richard E. Grojean, M.S.

Professional Preparation

Aims Among their many achievements, electrical engineers have been primarily responsible for the development of the computer, the pacemaker, television, satellite communication, space navigation, the interfacing of microprocessors in industrial applications, and the means of providing the energy needed to light our cities and towns and run our industries. At present, electrical engineers are also working to help find solutions to the problems of high-cost alternate energy, pollution, transportation, and health care. These are just a small sample of the growing wealth of evidence that indicates that electrical engineering has impact on all facets of our culture. As with all branches of technology, the societal functions and aims of electrical engineering are to maintain and improve the quality of life.

Description of Major Despite the diversity of its application, electrical engineering may be conveniently divided into the two broad, general areas of *information sciences* and *energy resources*. The area of information sciences is concerned primarily with systems whose function is computation, communication, or control. Included in this area are the circuits and devices that comprise the systems and the application of the systems and engineering techniques to other disciplines. Energy resources deal with problems related to the sources, generation, and distribution of large quantities of electrical energy. It should be noted, however, that no rigid boundary exists between the two areas, and many of the technical specialties within electrical engineering are applicable to both areas.

Many electrical engineers are involved with the more traditional activities of system design and development, such as the information sciences or energy resources area. Other electrical engineers apply the knowledge gained in their professional education to such disciplines as ocean exploration, meteorology, experimental psychology, electronic music, health-



care systems, bio-electronics, and educational devices for the disadvantaged.

The optimistic outlook for electrical engineering is based on the breadth of the technical activity described above. We are constantly reminded that among the pressing problems in our society are the "energy crisis," pollution, urban transportation, housing, health care, and the plight of the socially and physically disadvantaged. No one has yet been able to forecast how these problems will be solved without the use of technological resources. Readily available electrical energy, data processing, electronic instrumentation and control, and communication are among the crucial resources needed.

A View of the Five-Year Major The purpose of the curriculum is to offer the student an education that has the breadth and depth necessary for professional practice. Breadth is needed to give the student an awareness of all that electrical engineering encompasses and to provide the necessary background for independent study, a major criterion for professional success. Individual career objectives and initial professional achievement can result, in part, from learning a subject area in some depth. To achieve the balance between depth and breadth, the curriculum is divided into the *core program* and *elective courses*.

The core program includes those courses with content applicable to all specialties in electrical engineering and offers students a basic background for future learning. Subject areas covered in the core program include:

1. Circuits and systems
2. Electronic devices and circuits
3. Digital computer design
4. Electromagnetic theory
5. Electromechanical dynamics (energy conversion)
6. Electrical measurements (laboratories)

The elective courses are designed to permit students to develop their own interests. Many students use this part of the program to learn a particular subject in depth and to better prepare for graduate studies. A broad range of courses is offered, including Digital Computer Techniques, Numerical Methods, Communication Systems, Control Systems, Advanced Electronics, Solid-state Devices, Power Systems, Wave Propagation and Distributed Circuits, Network Theory, and Mathematical Techniques in Electrical Engineering.

In addition, students who wish to conduct individual projects or learn about a subject area not offered in an elective course may enroll in the senior project course and work with an interested faculty adviser on a one-to-one basis.

Electrical engineering graduates of Northeastern have attended and done well at all of the prestigious graduate schools. Those who have entered industry find they compare favorably with graduates of other institutions and many have risen to positions of leadership in their professions.

Five-Year B.S.-M.S. Program

Students with high QPA's may elect the five-year B.S.-M.S. program. By taking some course overloads and foregoing one senior co-op term, a student may complete requirements for both the B.S.E.E. and M.S.E.E. degrees in five years.

Option in Power Systems Engineering

The Power Systems Engineering Program in Electrical Engineering is a special option for those who wish to specialize in energy resources. This program is conducted in cooperation with the electric power companies in New England and other eastern states. The Master's degree can be obtained in six years of cooperative education or through the five-year B.S.-M.S. program described above. For further information about this program, students are advised to contact Dean Phillip R. McCabe, Admissions, 150 Richards Hall.

Option in Computer Engineering

The option in Computer Engineering is provided for those who wish to specialize in the design of digital computers and their integration within larger systems for communications, resource management, and automatic control.

In the design of a digital processing system, hardware and software must be considered as an integrated entity—software cannot be separated from hardware considerations. Thus, the computer engineer must be both a capable programmer and a capable hardware designer. The collective demands of computer engineering plus traditional electrical engineering encompass more knowledge than can be included in a single, highly structured degree program. The solution at Northeastern, as at many other schools, was to adopt a new undergraduate option within Electrical Engineering. The objective of this option is to provide the student with a basic and comprehensive knowledge of the principles that underlie the organization, design, and applications of digital processing systems. It encompasses both the hardware and software design aspects of the system and offers students the opportunity to acquire an understanding of the important relationships and "trade-offs" between the hardware and software components of a digital system. This understanding is necessary in order to create computer systems that satisfy the users' needs at prices they can afford.

The Computer Engineering option follows curriculum recommendations in the report "An Undergraduate Computer Engineering Option for Electrical Engineering" by the Cosine Committee of the Commission on Education, National Academy of Engineering, Washington D.C. 20418 (January, 1970). An important feature of this option is that it leads to a Bachelor of Science degree with specification—a degree in Electrical Engineering accredited nationally by the Engineers Council for Professional Development (ECPD).

Laboratories

The seven laboratory courses included in the program are an integral part of the educational process. Their purpose is both to supplement concepts developed in core courses and to introduce the student to design and experimental techniques.

To provide this facet of the educational experience, the Department has laboratory equipment in excess of \$1.5 million. In addition to standard professional laboratory equipment, several specialized laboratory facilities are maintained. These include several small digital computers such as the PDP-8, a PDP-11, LSI-11, a number of CRT terminals, a variety of microprocessors, and a semiconductor-devices laboratory, in which students fabricate transistors and integrated circuits. Programming courses and research programs also use the large computer system at Northeastern's Computation Center.

The freshman-year program of studies in the College of Engineering is the same for all majors in the College. See page 131.

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
Calculus*	12	Calculus†	8
Physics*	12	Physics Lab†	2
General Chemistry*	8	L.A. Electives (2)†	8
English*	8	Math Analysis	8
Basic Engineering*	8	Social Science/ Humanity Electives	20
Physics†	8		

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Circuits and Systems I & II†	8	Electronics I & II	8
Circuits and Systems III & IV	8	Field Theory I & II	8
Discrete Systems	4	Material Science	4
Thermodynamics	4	Design and Organization of Digital Computers	4
Mechanics	4	Electronics III	4
Electrical Engineering Lab.	8	Electromechanical Dynamics	4
		Technical Electives (4)	16

*Usually taken in the freshman year.

†Usually taken in the sophomore year.

The Electrical Engineering Department offers a wide variety of technical electives. These enable students to coordinate elective choices to satisfy their personal objectives of breadth or depth. To aid in selection, the elective courses are grouped by discipline.

Technical Electives**Electronic Circuits and Systems**

Selected Topics in Electronics
Theory & Tech. of Semicond.
Devices I
Theory & Tech. of Semicond.
Devices II
Senior Project Labs
Control Systems
Communication Theory
Math Techniques in E.E. I & II
Numerical Methods & Computer
Applications
Digital Techniques

Electromagnetic Theory

Wave Transmission & Reception
Advanced Topics in E & M
Math Techniques in E.E. I & II
Numerical Methods & Computer
Applications
Theory & Tech. of Semicond.
Devices I & II
Senior Project Labs

Computer Sciences

Numerical Methods & Computer
Applications
Digital Techniques
Introduction to Digital
Computers I & II
Communication Theory
Control Systems
Math Techniques in E.E. I & II
Selected Topics in Electronics
Applied Discrete Analysis
Machine & Assembly Language
Programming
Programming Systems
Microcomputer-based Design
Senior Project Labs

Systems Theory

Control Systems
Communication Theory
Math Techniques in E.E. I & II
Numerical Methods &
Computer Applications
Digital Techniques
Power Systems I & II
Wave Transmission & Reception
Senior Project Labs

Power Systems Option
Leading to
B.S. Degree-5 years
M.S. Degree-6 years

Basic Course Requirements

I. General Requirements

Course	Q.H.	Course	Q.H.
Calculus*	12	Calculus†	8
Physics*	12	Physics Lab†	2
General Chemistry*	2	Electives	8
English*	8	Math Analysis	8
Physics†	8	Social Science/ Humanity Electives (6)	24

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Circuits and Systems I & II†	8	E. E. Power Lab.	4
Circuits and Systems III & IV	8	Math. Methods in E.E.	4
Thermodynamics	8	Nuclear Engineering	4
Electrical Engineering Lab	4	Technical Electives	4 or 8
Electronics I & II	8	Energy and Public Policy	4
Field Theory I & II	8	Linear Systems Anal.§	4
Transients in Power Systems	4	Anal. of Power Systems	4
Probability§	2	Seminars (2)§	4
Electromechanical Dyn.	4	Power Systems Planning§	4
Mechanics	4	Special Topics in Power§	2
Machines and Systems	8	Grad. Electives§	16
Electric Power Systems	8	Computers in Power Systems§	4
Professional Development	0	Electric Machine Theory§	2
		Electromagnetic Theory§	4

*Usually taken in the freshman year.

†Usually taken in the sophomore year.

§Graduate courses, not needed for the B.S. degree.

Computer Engineering Option
Leading to B.S. Degree-5 years

I. General Requirements:

Same as general E.E. except for deletion of one 4-Q.H. required math analysis course and one 4-Q.H. arts and sciences elective.

II. Professional Requirements:

Same as general E.E. except for the deletion of one 4-Q.H. required E.E. course (Electromechanical Dynamics) and the addition of the following required courses:

Course	Q.H.	Course	Q.H.
Introduction to Digital Computers II	4	Machine Language and Assembly Language	
Programming Systems	4	Programming	4

Industrial Engineering and Information Systems Department

David R. Freeman, Ph.D., *Professor and Chairman*

Professors

Lewis H. Geyer, Ph.D.
Wilfred P. Rule, M.S.

Associate Professors

Franklyn K. Brown, Ph.D.
Richard I. Carter, M.S.
Thomas P. Cullinane, Ph.D.
Surendra M. Gupta, Ph.D.
Stewart V. Hoover, Ph.D.
Thomas E. Hulbert, M.S.
Robert S. Lang, M.S.
Ronald R. Perry, Ph.D.
Kenneth S. Woodward, M.S.

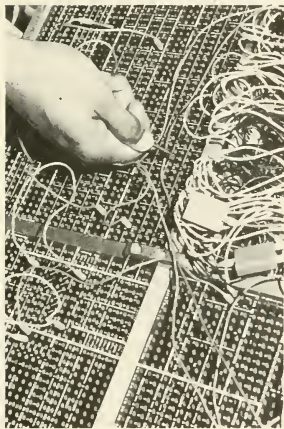
Assistant Professors

Joseph I. Herzlinger, M.S.
Nonna Lehmkuhl, M.S.
James R. Maiellano, M.S.
Emanuel S. Melachrinoudis,
Ph.D.
Robert Poe, Ph.D.

Instructors

James H. Bartlett, M.S.
Lawrence A. Bookman, M.S.
Pamela Halpern, M.S.
Joseph Missaghi, M.S.
Rena Tobias, M.S.
Gerald Volland, M.S.

Professional Preparation



Aims Industrial engineers assist management in making decisions involving the utilization of individuals, materials, equipment, and energy to achieve the goals of an organization. Management needs factual information that defines the consequences of alternative decisions. The industrial engineer collects this information and evaluates alternatives to make the decision that best achieves a particular organizational goal. The scope of decisions may involve the entire organization or some portion of it associated with a given product or service.

Traditionally, industrial engineers have been most widely employed in manufacturing organizations, but increasingly they are finding employment in service industries, such as airlines, banks, hospitals, and local and federal government agencies. Courses in the curriculum reflect the industrial engineer's interest in society's changing attitudes about computers, population growth, pollution, and the quality of life.

Another responsibility of the Department of Industrial Engineering and Information Systems is to provide a comprehensive view of engineering. Students are confronted with several problems similar to those they may encounter in professional careers. Methods of problem solving and graphic representation of solutions are emphasized so that students have the opportunity to learn some of the ways engineers communicate through drawings and sketches. The role of an engineer as a creative designer is described by relatively large case studies that show the step-by-step solution to specially chosen problems cutting across several engineering disciplines.

Another important aspect of the Department curriculum is the area of computers. The Department offers courses in FORTRAN, COBOL, PASCAL, Assembly language, and other topics to the entire University community. Each of these courses is heavily involved in applications to demonstrate the diverse ways in which the power of the computer may be applied to problems in areas such as engineering, social sciences, the humanities, and business.

Description of Major In performing problem analyses, the industrial engineer is concerned with complex, integrated man-machine systems. To treat the machine elements of the system, the industrial engineer requires knowledge of engineering fundamentals. Also necessary is some background in the behavioral sciences to understand how the human elements of the system operate and how they relate to each other and the machines.

A View of the Five-Year Major The program is designed to include extensive course work in mathematics, physics, science, and the engineering sciences. The first two years provide the student the opportunity to build a strong foundation for use in later course offerings.

The required program affords students an opportunity to develop a strong base in probability, statistics, operations research, and computer systems. Courses in work design, personnel and organizational behavior, and engineering economy provide an exposure to the problems frequently encountered in industrial engineering. Elective offerings in the last few years provide an opportunity for students to familiarize themselves with other areas of industrial engineering, such as plant layout, quality control, simulation, management information systems, production and inventory control, and material-handling systems design.

The Computer Students are required to learn basic computer programming in their first year. In later years, they are asked to solve complicated problems by computer. The computer is of particular interest to the industrial engineer since many complicated problems, such as assembly-line balancing, mathematical modeling, and industrial simulations, require a computer solution.

Five-Year B.S.-M.S. Program

An accelerated program is available for honor students, allowing completion of the requirements for both B.S. and M.S. degrees in five years through course overloads starting in the third year and the elimination of the senior co-op term.

Laboratories

Integrated Laboratory The new Industrial Engineering Laboratory is an integrated lab used for a variety of different courses. Directly associated with the lab classroom are the computer console room, utilized in a variety of courses; the copying equipment for use in the plant layout courses; and the machine-tool lab for use in work design. Students work as individuals or in groups, depending upon the scope and complexity of the project. Extensive laboratory project work is also conducted in outside industrial plants and service organizations on real problems. Students can view actual operations on occasional plant visits.

Human Factors Laboratory Equipped primarily for experimentation in perception, the facility is used for demonstration and student projects.

Computer Laboratory A facility with two minicomputers provides an opportunity for students to gain experience in operating a small computer and utilizing it for application to actual engineering problems. The facility also houses terminals for communication with the University computer system.

The freshman-year program of studies in the College of Engineering is the same for all majors in the College. See page 131.

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
Calculus*	12	Physics†	4
Physics*	12	Physics Lab†	2
General Chemistry*	8	Economics I & II†	8
English*	8	Math Elective§	4
Basic Engineering*	8	Effective Speaking	3
Calculus†	8	Social Science/ Humanities Electives	20

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Work design*†	4	Personnel and Organizations	4
Engineering Science Elective†**	4	Engineering Economy and Statistical Decision Theory	4
Probability Analysis†	4	Engineering Science Electives (5)**	20
Statistics I & II	8	Technical Electives (4)††	16
Industrial Cost Control	4		
Operations Research	8		
Systems Analysis I & II	8		
Simulation	4		

*Usually taken in the freshman year.

†Usually taken in the sophomore year.

§Differential equations or suitable offering of Math Department, with consent of the adviser

**Five Engineering Science courses are required. They must include:

Principles of Computation and Programming I
Mechanics
Electrical Engineering I

The remaining courses may be selected from:

Principles of Computation and Programming II
Electrical Engineering II
Mechanics II
Flow of Fluids
Thermodynamics I
Materials Science

††Four Technical Electives are required. Two must be Industrial Engineering electives:

Production Planning
Facilities Design
Quality Control
Management Information Systems
Human Factors
Industrial Relations
Human Considerations in Design
Data Base Management
Microprocessors

Mechanical Engineering Department

Richard J. Murphy, Ph.D., *Professor and Acting Chairman*

Professors

John W. Cipolla, Jr., Ph.D.
John F. Dunn, Sc.D.
Arthur R. Foster, M.Eng.
Welville B. Nowak, Ph.D., *D. Smith*
Professor of Engineering
John N. Rossettos, Ph.D.
Joseph J. Zelinski, Ph.D.

Assistant Professors

George G. Adams, Ph.D.
Gregory J. Kowalski, Ph.D.
Mohamad Metghalchi, Ph.D.
Robert L. Sullivan, M.S.
Ibrahim Zeid, Ph.D.

Associate Professors

Ralph S. Blanchard, M.S.
Alexander M. Gorlov, Ph.D.
Bertram S. Long, M.E.
Ernest E. Mills, M.S.
Warren G. Nelson, Sc.D.
Alvin J. Yorra, M.S.
John Zotos, Met. Eng.

Professional Preparation

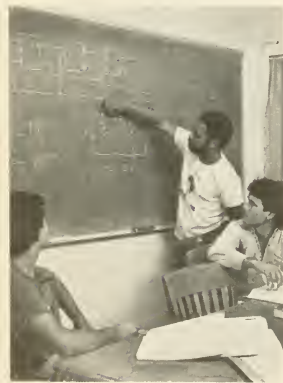
Aims Mechanical Engineering is the branch of science broadly concerned with energy, including its transformation from one form to another, its transmission, and its utilization. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex man-machine systems—for energy conversion, environmental control, materials processing, transportation, materials handling, and other purposes.

Mechanical engineers are engaged in all the engineering functions, including creative design, applied research, development, production, and management. The field of mechanical engineering is broad, providing an excellent professional base for career choice and interdisciplinary activities.

Description of Major The curriculum is intended to accommodate changing demands on the mechanical engineer by offering a firm foundation in the basic sciences before students direct their studies toward a chosen area of interest.

A View of the Five-Year Major In the first three years, students have the opportunity to learn the basic sciences (mathematics, physics, and chemistry), the engineering sciences (mechanics, thermodynamics, fluid mechanics, and material science), and the humanities. As upperclassmen, they may choose to concentrate their studies in the areas of thermofluid engineering, mechanics and design, or materials science and engineering.

Thermofluid engineering is concerned with the properties and characteristics of the working fluid of machines. For example, the ability of an aircraft to fly depends upon the manner in which air flows over its lifting surfaces. The energy to run a turbine is extracted from the steam or combustion gases that pass through it. The engineer must understand and have a knowledge of the concepts of thermodynamics. The efficiency of a cooling tower depends upon the mechanisms by which fluids transfer heat to surfaces, so the engineer must have a firm grasp of the principles of heat transfer.



Mechanics and design are based upon the fundamental scientific and mathematical tools utilized in the analysis of mechanical configurations as they evolve in the design of machines and power-producing devices. For example, the engineer in the area of mechanics and design may analyze and design structural components for power plants and deep-sea oceanographic vessels or develop new methods for evaluating filamentary composite structures. In the modern machine-tool industry, engineers may be concerned with computer control of machine tools; in the engine industry, they may analyze stresses in components such as turbine blades. To prepare for such challenges, upper-class students have the opportunity to expand their basic knowledge by selecting courses such as Intermediate Strength of Materials, Vibrations, Systems Analysis and Control, Engineering Analysis, and Design Fundamentals.

Materials science and engineering is concerned with relationships among their structure, composition, properties, and functions of materials and with control of the structure and composition to achieve desired properties. Only recently have engineers come to realize that an understanding of the principles of materials science enables them to design more creatively and with greater freedom than the traditional reference to handbooks. Examples of areas in which mechanical engineers find materials properties a part of the basic design function include: manufacturing techniques, structures (vehicles, buildings), energy conversion, electronic devices (including computers), packaging, and prosthetic devices. Advanced courses are available for those mechanical engineers who desire further knowledge in the materials field.

Five-Year B.S.-M.S. Program Honor students may take an accelerated program allowing completion of the requirements for both B.S. and M.S. degrees in five years through course overloads starting at the third year and the elimination of the senior co-op term.

Special Information

Mechanical Engineering Laboratories

The laboratories in Mechanical Engineering contain equipment ranging from an electron microscope and ultrasonic measuring devices to pumps and weirs. Students working on thermofluids projects may use a turbine, various types of engines, thermoelectric coolers and generators, and a supersonic wind tunnel, to name a few. A material science laboratory provides research microscopes, various furnaces, a fluid-to-fluid extrusion press, x-ray diffraction equipment, electron microscope, and other related equipment. For the mechanics and design areas, vibrations, experimental stress analysis, and materials testing facilities are provided. A continuous effort is made by the Department to update and replace laboratory equipment.

Computers

Amplifier Analog computers as well as time-sharing terminals give the laboratories both digital and analog capacity.

The freshman-year program of studies in the College of Engineering is the same for all majors in the College. See page 131.

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
English*	8	Physics†	4
General Chemistry*	8	Physics Lab†	2
Basic Engineering*	8	Math. Analysis	8
Calculus*	12	Social Science/Humanity	
Physics*	12	Elective	4
Calculus†	8	Economics†	4

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Mechanics I & II†	8	Measurement and Analysis	4
Thermodynamics I†	4	Fluid Mechanics	4
Thermodynamics II	4	Materials Science	5
Mechanics III & IV	8		

Junior and Senior Years

There are twelve courses to be selected by juniors and seniors in addition to four arts and sciences electives. All elective courses are subject to departmental restrictions. Students should obtain the latest departmental booklet describing these restrictions and current course offerings.

**Usually taken in the freshman year.*

†Usually taken in the sophomore year.

Biomedical Engineering Department

Samuel Fine, S.M., M.D., *Professor and Chairman*

Associate Professor

H. Frederick Bowman, Ph.D.

Professional Preparation

Aims Biomedical engineering is concerned with the scientific principles underlying the physical and biological sciences and their application to problems of biological and medical significance.

Biomedical engineers are engaged in both theoretical and experimental studies, either as independent investigators or as members of a research or development group. They may characterize and determine the mechanism of action of natural and synthetic macromolecules, analyze the properties of blood, and/or investigate the structure and function of such organ systems as the nervous system, the respiratory system, the cardiovascular system, or the endocrine system. They may design, develop, market and apply transducers, cardiac pacemakers and defibrillators, heart-assist systems, artificial kidneys and limbs, or diagnostic and therapeutic X-ray equipment. They are important members of the hospital health team.

There is no special curriculum in Biomedical Engineering. Several of the engineering disciplines discussed in this catalog help provide the engineer with a background in the physical sciences. The purpose of the Biomedical Engineering Department is to assist the engineering student, from the freshman year through the senior year, in choosing courses in the biological sciences to complement those in the physical sciences and humanities taken in the standard engineering curriculum.

Courses may be chosen without prejudicing the students' obtaining degrees in their field of engineering specialization. In some cases, courses in the biological sciences can be taken as additional work during the student's career at the University. In other cases, courses in the biological sciences can be taken as electives in the standard engineering curriculum. The opportunity to take these courses is dependent on the student's interests, capabilities, and academic record. It is, of course, limited by possible schedule conflicts.

Students who wish to take an engineering program that includes biological sciences must contact the Biomedical Engineering Department on their arrival as freshmen at the University. This is important since biology is substituted in the first year for graphics.

Education in a program involving the physical and biological sciences offers a sound foundation for future work toward a doctorate in medicine or dentistry, a career in biomedical engineering, or a career as an engineer in a hospital or a government agency such as the Department of Health and Human Services, depending upon such factors as the state of the economy and the student's own industry and overall ability. Industrial organizations, particularly those in the health-care industry, may be seeking individuals with a strong background in engineering supplemented by a biological science education. Other career opportunities may include public health, the psychological sciences, and the marine sciences.

General Engineering Program



Advisory Committee for 1981-1982

Thomas E. Hulbert, M.S., *Industrial Engineering, Chairman*
 Arvin Grabel, Sc.D., *Electrical Engineering*
 Saul Namyet, B.S., *Civil Engineering*
 Richard R. Stewart, Ph.D., *Chemical Engineering*
 Alvin Yorra, M.S., *Mechanical Engineering*

Professional Preparation

Aims Engineering and technology influence virtually all areas of endeavor and have a profound effect on the lifestyle and institutions of society. The impact is both cultural and scientific and is manifested by the awareness that solutions to society's problems are, in part, technological. The major purpose of the General Engineering program is to provide flexible, interdisciplinary educational opportunities based on fundamental engineering concepts. The interdisciplinary nature of the program allows the student to develop other areas of interest in which an engineering background is professionally useful.

Description of Major The program is designed for students whose interests are in engineering-related professions rather than in the traditional profession of engineering. It is expected that the work performed by graduates of this program will encompass the entire spectrum of professional activity, including such typical areas as computers, urban technology, social systems, and health care.

The General Engineering program is highly elective and gives students the opportunity to develop, in conjunction with their adviser, a program designed to meet their own career objectives. To achieve this goal, the student is exposed to the fundamental engineering areas through courses in electric circuits, systems, mechanics, thermodynamics, and materials. These courses are based on principles developed in early courses in mathematics and physics.

Because the computer is a basic tool in any technological environment, each student is required to learn the elements of computer programming.

Graduate education and continuing education are increasingly important in professional life. By appropriately planning their programs, students will be able to satisfy the course requirements necessary for admission to various graduate and professional schools, including law, medicine, public health, and social sciences, as well as engineering.

A View of the Five-Year Major Each student in the program is required to satisfy the following minimum requirements beyond the freshman year:

- 8 quarter hours in mathematics
- 6 quarter hours in physics (including laboratory)
- 4 quarter hours in circuit theory
- 4 quarter hours in materials
- 4 quarter hours in systems
- 4 quarter hours in thermodynamics
- 16 quarter hours in social sciences (consisting of at least two sequences of two courses each from the areas of sociology, economics, political science, and psychology)
- 8 quarter hours in the humanities, consisting of at least two courses from the areas of art, history, language and literature (not including grammar), music, philosophy, and drama (not including public speaking)

The remaining portion of the program is completely elective but must be designed to fit the student's career objectives. At least 24 quarter hours of course work must be taken in the professional departments of the College of Engineering (Chemical, Civil, Electrical, Industrial, and Mechanical Engineering).

Beyond the freshman year, students, in conjunction with a faculty adviser, plan their programs. Basically, the elective program permits each student to plan a distinctive and highly individual curriculum.

Although each student is enrolled in a "different program," the goals of each are the same: the breadth of an engineering-based liberal education in combination with the development of professional skills.

Computer Science Degree

Program (offered jointly with the College of Arts and Sciences)

Aims Although students of computer science concern themselves, on the surface, with the languages used in writing computer programs, their involvement in the study of "software design" goes much deeper. They study the application of computers to many fields, including business, science, and industry as well as various methods for making the computer simulate large systems (manufacturing, hospital, transportation, or human systems). They consider the various approaches to storing maximum amounts of information in a given computer system's storage devices and of minimizing the time it takes to retrieve that information. How to select the best computer system for a particular application is also of concern to computer science students. Because it is possible for errors to creep into computer calculations, they study the ways in which such computational errors can be detected and minimized. A newly emerging topic of concern is that of program structure and design—a concern directed at determining the best approach to organizing large programs so that the chance for errors occurring in the programs, the difficulty of detecting those errors, and the cost of correcting them will all be minimized.

The Computer Science program was designed following the recommendations of two large, national professional societies—the Association for Computing Machinery and the Mathematics Association of America. It is a well-rounded and flexible program in which students are expected to fulfill certain minimum essential course requirements but are given an unusually wide selection of electives from which to choose. In this way, students slant their course work in the direction of the particular fields of computer applications that most interest them.

Description of the Five-Year Program The program includes courses in computer science, including at least one from each of the following areas: computer languages, computer architecture, computer data structures, and numerical methods or applications programming. The total program must include courses from the College of Engineering, the College of Arts and Sciences, and other Basic Colleges.

Like most programs offered by the University, the Computer Science program is conducted under Northeastern's unique cooperative education plan.

Sample Program of Studies

Freshman Year

First Quarter

Calculus I
Physics I
Comp. Sci. I
English

Second Quarter

Calculus II
Physics II
Comp. Sci. II
English

Third Quarter

Calculus III
Physics III
Soc. Sci./Human. elect.
Applied Prog.
Prog. Lang. Lab I

Sophomore Year

Fourth Quarter

Calculus IV
Assembly Lang. I
Data Structures
Soc. Sci./Human. elect.
Prog. Lang. Lab II

Fifth Quarter

Discrete Math
Assembly Lang. II
Comp. Org. & Des. II
Soc. Sci./Human. elect.
Prog. Lang. Lab III

Middler Year

Sixth Quarter

Linear Algebra
File Processing
Comp. Org. & Des. II
Coord. Study elect.

Seventh Quarter

Probability
Operating Systems
Coord. Study elect.
Soc. Sci./ Human. elect.

Junior Year

Eighth Quarter

Statistics I
Anal. of Prog. Lang.
Automata & Formal Lang.
Soc. Sci./Human. elect.

Ninth Quarter

Compiler Des. I
Anal. of Algorithms
Coord. Study elect.
Soc. Sci./ Human. elect.

Senior Year

Tenth Quarter

Comp. Sci. elect.
Coord. Study elect.
Coord. Study elect.
Comp. Sci. project

Eleventh Quarter

Coord. Study elect.
Coord. Study elect.
Soc. Sci./Human. elect.
Comp. Sci. Seminar

Students with a very strong interest in life science may be allowed to substitute chemistry or biology for physics courses if scheduling permits.

Lincoln College

William F. King, M.S., P.E., *Director, Associate Dean of Engineering*

Jacob Wiren, M.S., P.E., *Assistant Director*

Rasma Galins, *Assistant to the Director*

Professor

Israel Katz, M.S., *Engineering Technology*

Associate Professors

Borah Kreimer, M.A., *Engineering Graphics*

Ernest E. Mills, M.S., P.E., *Electrical Engineering Technology*

Louis J. Nardone, M.S., P.E., *Electrical Engineering Technology*

Thomas E. Phalen, M.S., P.E., *Mechanical Engineering Technology*

Professional Preparation

Aims Lincoln College offers programs in engineering technology. Although these programs are concerned with the same general fields of engineering specialization, they concentrate on the applications of technology rather than its development.

Emphasis is placed on the rational processes involved in converting theories and ideas into practical techniques, procedures, and products. The engineering technologist works with the professional engineer, scientist, medical doctor, supervisor, and craftsman in converting scientific knowledge and craftsmanship into products and techniques. Fundamentals are related to current practice, providing a supportive "why" for the practical "how." At the same time, study of the humanities and social sciences gives students an opportunity to develop an awareness of the social, economic, and political influences that are part of the real world.

The structure of the Engineering Technology curriculum is based upon the dual need for relevant technical skills and a foundation for future growth. Engineering technology education can assist students to:

1. Understand the scientific principles that govern the current technology of the particular branch of engineering that they select
2. Develop competence in the application of technology to problem solving
3. Communicate effectively the important implications of technological advancements
4. Acquire the motivation for continued development of technical skills.

A View of the Five-Year Program Lincoln College offers five-year cooperative programs in Mechanical and Electrical Engineering Technology leading to the degree of Bachelor of Engineering Technology.

Since the first year of study is identical for all technology students, a firm choice of major may be delayed until the spring. At this time, the choice of cooperative work assignments makes a decision mandatory. Freshman courses act as a foundation for upperclass studies. About four-fifths of the upperclass program is devoted to scientific and technological study and about one-fifth to humanistic-social courses, with the aim of balancing technical proficiency with an appreciation for the nontechnical aspects of society and culture. Cooperative work assignments during the upperclass years are most valuable in helping students to integrate the important elements of both a technical and a liberal education.

Part-Time Program Offered During Evening Hours Lincoln College also offers seven-year, part-time curricula leading to the degree of Bachelor of Engineering Technology in the following areas:

- Civil Engineering Technology
- Mechanical Engineering Technology
- Mechanical-Structural Engineering Technology
- Electrical Engineering Technology
- Computer Technology

Classes are held in the evenings and on Saturday mornings. For further information on admission to these programs, contact the Lincoln College office at 408 Churchill Hall.

Graduation Requirements

Candidates for the Bachelor of Engineering Technology degree must complete all of the prescribed work of the curriculum in which they seek to qualify. A total of approximately 180 quarter hours is required for the degree. Students who undertake the cooperative education program must meet the requirements of the Department of Cooperative Education before they become eligible for their degrees.

Students transferring from another college or university are not eligible to receive the degree until they have completed at least one academic year at Northeastern immediately preceding their graduation.

Graduation with Honors

Baccalaureate candidates who have attained superior grades in their academic work will be graduated with honors. Upon special vote of the faculty, a limited number of this group may be graduated with high honors or with highest honors. Students must have been in attendance at the University at least six academic quarters and have earned a minimum of 72 quarter hours of credit before they may become eligible for honors at graduation.

Accreditation

All undergraduate day programs, as well as the evening part-time baccalaureate programs in Mechanical, Mechanical-Structural, Civil, and Electrical Engineering Technology, are accredited by the Accreditation Board for Engineering and Technology (ABET), formerly the Engineer's Council for Professional Development.

Facilities

The Northeastern electrical engineering laboratories are patterned after a composite of typical industrial research and development laboratories. Boasting a wide variety of modern testing and measuring equipment, the laboratories are an excellent adjunct to the classroom. Here, students may simulate or fabricate devices or systems that have been studied in their lecture courses.

From light machinery and power equipment to microwave precision systems, students plan and pursue their projects in the laboratory. Four LSI-11 Digital Equipment computers are available in the laboratories for direct programming or use in other laboratory experimentation. In addition, several varieties of microprocessors and associated equipment are used in student laboratories.

The Mechanical Engineering Department includes the following laboratories:

Materials and Metallurgy Laboratories—Equipped to treat the physical examination of materials and their structures. The equipment includes modern apparatus for vacuum melting technology, X-ray diffraction, and thermal

expansion studies; two research metallographs; an electron microscope; and fluid-to-fluid extrusion press.

Fluid and Gas Dynamics Laboratory—Designed to study aerodynamic and hydrodynamic phenomena such as vortices, separation streamlines, and shock waves. Equipment includes an aerodynamalog, an axial flow fan, shock tube, subsonic wind tunnel, and supersonic wind tunnel.

Materials Testing and Stress Analysis Laboratories—Equipped to handle both the destructive and nondestructive testing of materials. This laboratory has a 300,000-pound Universal testing machine with an automatic electronic stress-strain recorder and high-temperature tensile test furnace. Stresses and strains may be determined experimentally by the use of strain-gage, photoelastic, photostress, and brittle-lacquer techniques.

Recent additions include vibration-testing units and a fatigue-testing machine with a 2,000-pound capacity.

Heat Engineering Laboratories—Include a refrigeration unit, which may also operate as a heat pump; two solid injection diesel engines provided with a continuous oxygen analyzer, one equipped with a strain-gage torque meter; a CFR fuels-research engine equipped with a strain-gage pressure transducer; a 60-h.p. Rover gas turbine with automatic controls and Froude dynamometer; apparatus for study of steam-to-water heat transfer, comparison of film versus dropwise condensation, heat transfer to a boiling liquid, and thermocouple recovery factor; a thermoelectric generator to study the direct conversion of heat into electrical energy; a thermoelectric-refrigeration test facility for development of single and multistage thermoelectric coolers; and a Curtis steam turbine and condenser.

Automatic Control Laboratory—Includes a feedback control system and analog computers for simulating engineering problems, and fluid power testing units.

Academic Computer Services

The Northeastern University Computation Center is a support arm to the many computer-oriented curricula of the various departments throughout the University. The facility recently has been updated with the installation of a powerful Digital Equipment VAX series system with time-sharing capability. As the prime computation center necessary in meeting curriculum requirements, the Center is used by the students in both the Electrical Engineering Technology and Mechanical Engineering Technology programs.

Aviation Technology

Kenneth S. Woodard, M.S., *Adviser*

Lincoln College also offers a full-time program in Aviation Technology leading to an Associate's degree. This program is based at the Burlington Campus and flying may be done at Wiggins Airways in Norwood or the Comerford Flight School located in Bedford. The Pilot School is approved by the Federal Aviation Administration. Students having a strong interest in flying as an integral part of their careers should contact the program adviser at the Burlington Campus.

Women in Engineering Technology

Many women enter the technology field each year. Both government and industry provide positions of responsibility for women technologists. Any young woman with technical or scientific interests should consider engineering technology as a career.



The freshman-year program of studies in Linhold College is the same for all majors in the College.

Sample Freshman-Year Program of Studies In Engineering Technology

First Quarter

Algebra and Trigonometry I
 Physics I
 English Writing
 Engineering Design Graphics I
 Principles of Computer Programming

Second Quarter

Algebra and Trigonometry II
 Physics II
 English Literature
 Engineering Design Graphics II
 Electronic Graphics
 Physics Lab I

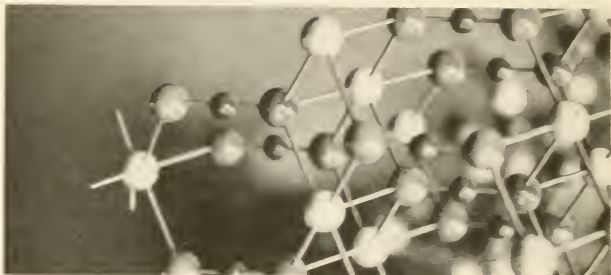
Third Quarter

Calculus I
 Physics III
 English Literature
 Physics Lab II

In addition to the above courses, students may elect to take Basic ROTO

Electrical Engineering Technology

Louis J. Nardone, M.S., *Coordinator for Electrical Engineering Technology*



Professional Preparation

Aims Because the Bachelor of Engineering Technology (BET) program has been designed to provide trained people for ready assimilation by the engineering field, its main thrust is not aimed at preparing the student for direct admission to the graduate schools of engineering.

However, for the student who achieves above-average grades, the BET program can be an avenue of admission to the College of Engineering via several options. Students who desire to explore this possibility should contact their freshman adviser or the Director of Lincoln College. In most other cases, graduates of the BET program will be eligible for graduate programs other than engineering, such as business, law, or education.

Description of Major Electrical engineering technology deals with the design and operation of equipment and systems related to power, communications, data processing, and electrical control. Its major functions include:

1. The generation, transmission, and distribution of electrical energy for light and power purposes
2. The development and production of equipment for telephone, radio, television, radar, and communication
3. The design and construction of data-processing systems and analog or digital computers
4. The application of electrical and electronic devices in the control of processes and manufacture

A View of the Five-Year Major Since electrical engineering technology derives many of its fundamentals from developments in the pure sciences, the program of study begins with basic courses in mathematics and physics. In addition, the freshman year includes literature and engineering graphics to aid students in developing the skills with which to express themselves.

In the upperclass years, courses are divided into four related sequences: circuits and systems, including feedback control; microwave devices; energy conversion, emphasizing electromagnetic devices; and laboratory work associated with all of the foregoing. Current practice is stressed.

In the senior year, electives are offered to ensure that students acquire both depth and specialization.

The freshman-year program of studies in Lincoln College is similar for all majors in the College. See page 156.

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
Algebra and Trigonometry I & II*	8	Principles of Computer Programming*	4
Calculus I*	4	Physics I, II, III*	12
Calculus A & B†	8	Physics IV†	4
English*	12	Physics Lab I & II*	2
Principles of Economics	4	Arts and Sciences Electives†	8
Engineering Design Graphics I*	4	Arts and Sciences Electives	12
Electronic Graphics	4	Technical Electives	16

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Circuit Analysis I & II†	8	Digital Computers	4
Circuit Analysis III & IV	8	Distributed Systems	4
Physical Electronics†	4	Circuits Lab I†	2
Electronics I, II, III	12	Circuits Lab II	2
Control Engineering I & II	8	Electronics Lab	2
Engineering Analysis I	4	Advanced Electronics Lab I, II, III	6
Energy Conversion	4		
Electrical Measurements	4		

*Courses are taken in the freshman year.

†Courses are taken in the sophomore year.

Mechanical Engineering Technology

Ernest E. Mills, M.S., *Coordinator for Mechanical Engineering Technology*

Professional Preparation

Aims The objectives of the program are the same as those listed for the Electrical Engineering Technology program.

Description of Major Mechanical engineering technology deals with the use of machinery to harness power resources and perform useful work. In contrast to civil engineering, which deals primarily with static forces and structures, mechanical engineering is more concerned with the motion and kinetics of devices activated by hydraulic, electrical, mechanical, or thermodynamic forces. Major functions of the mechanical engineering technologist include:

1. Design and installation of all kinds of machinery, from pocket watches to the largest steel boring mills
2. Development and production of engines and transport equipment, as in automobiles, aircraft, ships, or railway cars
3. Construction and operation of furnaces and boilers, as well as heating and air-conditioning equipment, for the control of atmospheric and environmental conditions.

A View of the Five-Year Major Since machinery is the predominant concern of the mechanical engineer, the program of study is designed to offer considerable training in the principles underlying the design and operation of engines, power transmission devices, machine tools, and other machinery. This, of course, implies a thorough study of the physical laws concerning motion and transfer of energy. Applied mechanics, thermodynamics, and study of materials will occupy prominent places in the program.

These studies help provide the student with a broad foundation in those fundamental subjects essential to the understanding of current practice. In the junior and senior years, students have considerable elective choice and opportunity for specialization.

The freshman-year program of studies in Lincoln College is the same for all majors in the College. See page 156.

Basic Course Requirements

I. General Requirements

Course	Q.H.	Course	Q.H.
Algebra and Trigonometry I & II*	8	Physics Lab I & II*	2
Calculus I*	4	Engineering Design Graphics I, II	8
Calculus A, B†	8	Principles of Computer Programming*	4
English*	12	Arts and Sciences Electives	20
Principles of Economics	4	Technical Electives	24
Physics I, II, III*	12		

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Mechanics A, B†	8	Mechanical Design	6
Mechanics C	4	Thermodynamics A, B, C, D	14
Stress Analysis A†	4	Fluid Mechanics A & B	6
Stress Analysis B	4	Mechanical Laboratory	6
Materials†	4	Heat Laboratory	4
Engineering Design	4	Project Laboratory	4
Electricity and Electronics	4		

*Usually taken in the freshman year.

†Usually taken in the sophomore year.

College of Nursing

Juanita O. Long, R.N., M.S.N., Ed.D., *Dean*

Adele I. Law, R.N., M.S.N., *Assistant Dean*

Angelo J. Logiudice, M.Ed., *Assistant to the Dean*

Associate Professors

Jane Aroian, R.N., M.S.N.

Olivia M. Breton, R.N., M.Ed.

Elaine Capozzoli, R.N., M.A.

Janet Carroll, R.N., M.S.

Ellen T. Daly, R.N., M.S.N.

Flora M. DeScenza, R.N., M.S.

M. Paula Fellows, R.N., M.S.

Jean P. Gilbert, R.N., M.S.

O. Barbara Goodfellow, R.N., M.S.N.

Mary C. Keaney, R.N., M.S.N.,
C.A.G.S.

Jane M. Lee, R.N., M.S.

M. Marcia Lynch, R.N., M.S.

Susan C. Marchessault, R.N.,
M.S.

Geraldine A. Medici, R.N., M.S.

Marilyn M. Smith, R.N., M.S.,
M.B.A.

Joyce E. Tingle, R.N., M.S.

Nancy Walden, R.N., M.S.N.

Mary E. Wilcox, R.N., M.S.

M. Delaine Williamson, R.D., M.S.

Assistant Professors

Sister Marie Bransfield, R.N.,
M.S.N.

Nancy N. Carr, R.N., M.S.

Sally J. Cloutterbuck, R.N.,
M.S.N.

Lael T. Cutler, R.D., M.P.H.

Barbara A. DiBenedetto, R.N.,
M.S.

Kathleen Govostes, R.N., M.S.

Elaine Hurley, R.N., M.S.

Barbara A. Lagerbom, R.N., M.S.
D. Jeanne Otto, R.N., M.S.,
M.Ed.

Barbara A. Whitmeyer, R.N., M.E.

Patricia S. Williams, R.N., M.S.

Constance A. Willis, R.N., M.S.

Eve Ellen Wise, R.N., M.S.

Karen A. Wolf, R.N., M.S.

Instructors

Helen Ahearn, R.N., M.S.N.

Jane Armstrong, R.N., M.S.N.

Jane E. Ashley, R.N., M.S.N.

Brenda Boyce, R.N., M.S.N.

Mary Ann Ferguson, R.N., M.S.

Annette P. Gaines, R.N., M.S.

Nancy E. Lyga, R.N., M.S.

Joan L. Mamelok, R.N., M.S.

Professional Preparation

Aims First in the nation to operate on a cooperative plan. The College of Nursing was established at Northeastern University in 1964.

The generic baccalaureate degree program is five years in length and leads to the degree of Bachelor of Science in Nursing. The program is designed to offer students the opportunity to prepare themselves for positions as beginning professional practitioners, giving nursing care in a variety of patient-care settings, and to obtain the foundation for graduate study.

Programs for RNs The College of Nursing has instituted full-time day and part-time evening programs for registered nurses who wish to complete requirements for the Bachelor of Science degree in Nursing.

The length of the program depends upon the individual's interest and ability to achieve advanced placement. Applicants whose knowledge of subject areas has been obtained through actual experience, previous educational preparation, or individual study are encouraged to apply for credit



through the advanced placement process. This opportunity is available for most of the nursing and non-nursing courses. Tests prepared by Northeastern University faculty and CLEP (College Level Examination Program) will be utilized.

A View of the Nursing Program In common with the other Basic Colleges at Northeastern, the College of Nursing operates on the cooperative plan. In addition to college instruction, each student has the opportunity to obtain practical experience as a paid employee of one of the cooperative health-care agencies. The work does not carry academic credit, but it must be satisfactorily completed. During periods of employment, students have the opportunity to increase nursing skills and gain significant experience in nursing settings, as well as earn money to help defray expenses.

The College of Nursing programs offer general education courses concurrently with nursing courses to provide the educational foundation for the practice of nursing. Required courses for the Nursing major are planned in sequential order and draw on content from the physical, biological, and social sciences and from the humanities.

Freshmen remain on campus for three consecutive quarters of academic study, while students in succeeding years alternate periods of study at Northeastern with periods of cooperative work experience in participating health agencies.

Cooperative work placements are arranged by a nursing coordinator in accordance with agreements made by the University and a number of hospitals in the Greater Boston area and surrounding communities. Cooperative work experience is a requirement for the degree except for the experienced registered nurse students. Student preferences as to assignment will be given consideration in conjunction with other factors.

Under the guidance of the College of Nursing faculty, clinical experience in the care of patients is introduced during the second year of the program. Approximately twenty outstanding hospitals and health-related agencies are utilized to provide facilities for clinical laboratories.

Graduation Requirements

Degrees A Bachelor of Science degree awarded upon completion of the program. All candidates must successfully complete all the prescribed courses and periods of cooperative work. One hundred and seventy-seven quarter hours are required for the Bachelor of Science degree. An overall scholastic average of C in both nursing and general studies is required for graduation.

Graduation with Honors

Candidates for the Baccalaureate degree who have attained superior grades in their academic work will be graduated with honors (3.0 GPA). Upon special vote of the faculty, a limited number of this group are graduated with high honors (3.5 GPA) or highest honors (3.7 GPA). Students must attend the University at least six quarters to become eligible for honors at graduation.

Accreditation

The program of the College of Nursing is fully accredited by the National League for Nursing and approved by the Board of Registration in Nursing of the Commonwealth of Massachusetts.

Licensure

The program of the College of Nursing is designed to prepare graduates to qualify to take the professional examinations established by the Board of Registration in Nursing. Graduates are expected to take these exami-

nations for licensure as registered nurses when the examinations are first offered after graduation.

Acceleration Policies

Enrolled students who wish to accelerate must satisfy the following criteria prior to submitting their petition to accelerate to the Academic Standing Committee:

Students should have a minimum of sixty quarter-hour credits accepted by Northeastern University's College of Nursing *before entrance* into the nursing program.

Students will be allowed to transfer credits earned in courses at other institutions if a grade of C or better has been obtained and if the descriptions of the courses taken are similar to courses required at Northeastern University.

Students must have achieved a cumulative average of 3.0 or better in the following nursing courses: 80.217, 80.218, 80.219, 80.204, and 80.205.

Life experience in health-related fields will be examined to ascertain whether these meet the established objectives of cooperative nursing education. A student may petition to be exempt from a *maximum* of four cooperative experiences.

Rotation into a clinical nursing course is contingent upon available openings in the course. Students accelerating in nursing courses will be required to meet the existing promotional policies. All students receiving a degree from Northeastern *must be in residence for one year*.

Special Requirements

Students in the College of Nursing are required to wear the school uniform in clinical laboratory areas during academic quarters. A modification of the uniform is worn during cooperative work periods.

All students must carry malpractice insurance. Arrangements for this insurance are made by the University.

Sample Freshman-Year Program of Studies in the Nursing Program

First Quarter

Biology
Western Civilization
English
Nursing

Third Quarter

General Chemistry
Anatomy
Western Civilization
Human Nutrition

Second Quarter

General Chemistry
Biology
English
Nursing

NOTE: Current requirements now being revised. Information concerning new requirements may be obtained from the Office of the College of Nursing, 102 Robinson Hall.

Basic Course Requirements: Baccalaureate Degree**I. General Requirements**

Course	Q.H.	Course	Q.H.
Biology*	8	Fundamentals of Psychology I & II†	8
Western Civilization*	8	Social Anthropology†	4
English*	8	Principles of Sociology**	4
General Chemistry*	10	Social Psychology**	4
Anatomy*	4	Electives (6)	24
Microbiology†	4	(includes 8 Q.H. of Humanities)	
Physiology†	8		

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Nursing*	8	Maternal-Child Nursing	9
Human Nutrition*	4	Psychiatric-Mental Health Nursing**	9
Nursing†	10	Community Health Nursing	9
Growth and Development I & II**	8	Contemporary Nursing	9
Pharmacology**	3		
Nursing**	7		
Medical-Surgical Nursing	9		

*These courses are usually taken in the freshman year.

†These courses are usually taken in the sophomore year.

**These courses are usually taken in the third year.

College of Pharmacy and Allied Health Professions

Gerald E. Schumacher, Ph.D., *Dean*

Judith T. Barr, M.Ed., *Associate Dean*

John L. Neumeyer, Ph.D., *Director, Graduate School of Pharmacy and Allied Health Professions*

Joseph F. Palumbo, M.S., *Assistant to the Dean for Student Affairs*

Kathleen T. Foley, A.S., *Assistant to the Dean*

Professional Preparation

Aims Northeastern University recognizes the increased demand for well-educated pharmacists and allied health professionals. The College of Pharmacy and Allied Health Professions is pledged to meet this need through a unique combination: the cooperative plan of education and a highly innovative academic program designed to offer students the opportunity to prepare themselves to become effective professional practitioners, to enter graduate schools, and to obtain employment in the many areas responsible for the delivery of health care.

A View of the Five-Year Program Fundamental to the College's approach to health-care education are:

1. A curriculum of highly relevant and closely integrated courses in the physical, biological, behavioral, and administrative sciences comprising the basis of modern professional practice;
2. A meaningful involvement in the clinical aspects of patient care via affiliations with teaching hospitals and related institutions;
3. A cooperative work program, including an externship-internship period, and a clinical component offering students the opportunity to acquire the skills and actual experience integral to the total program;
4. A commitment to the search for and advancement of new and progressive concepts, ideas, and philosophies of education and professional practice.

Facilities

The College occupies the Mugar Life Sciences Building on the main campus of the University. Completed in 1963, this multimillion-dollar facility offers proximity to all the academic and extracurricular activities of the University.

The building and the recently completed addition, with its well-equipped laboratories and classrooms for both undergraduate and graduate programs, are designed to anticipate the physical needs of a growing and progressive College. In addition to faculty and administrative offices, a Drug Information and Resource Center, and the graduate school, there are laboratories for radioisotopes, clinical chemistry, medicinal chemistry, drug analysis, prescription pharmacy, clinical pharmacy, hematology, pharmacology, respiratory therapy, medical record science, and clinical microbiology. Animal rooms and audiovisual capabilities for all programs are also featured in this five-story structure. Research facilities are available for upperclass students who participate in original research projects.

Transfers with Advanced Standing

The College of Pharmacy and Allied Health Professions may accept qualified transfer students who have successfully completed one or more years of preprofessional course work in an accredited college or university.

Degrees Granted

The degrees of Bachelor of Science, Bachelor of Science in Pharmacy, Bachelor of Science in Respiratory Therapy, Bachelor of Science in Toxicology, Associate in Science, and Associate in Science in Dental Hygiene are awarded to qualified candidates.

Accreditation

Each of the programs offered by the College is accredited by the appropriate professional group. The College holds membership in both the American Association of Colleges of Pharmacy and the American Society of Allied Health Professions.

Health-Care Curriculum Open Option

If you are interested in pursuing a career in the health-care professions but are undecided as to which profession is right for you, then explore the Open Option offered by Northeastern's College of Pharmacy and Allied Health Professions.

A Valuable Foundation The Open Option program offers freshmen a core of courses designed to provide a basic scientific background required for each of the professional programs in the College of Pharmacy and Allied Health Professions. You also are introduced to the basic principle of health-care delivery, health-care agencies and services, and attitudes, behavioral aspects, and policies that may influence health-care systems.

The Advantages The Open Option is especially valuable to students who need assistance in determining an area of interest within the health-care field. By examining various professions, and thus gaining an overview of the discipline, you can refine your health-care career goals. You may also familiarize yourself with what is expected of you in various health-care professions. Subsequent selection of a professional program may proceed more smoothly, an advantage that may help you gain more confidence and certainty in pursuing your degree. Even though in the Open Option you consider various health professions, you still complete some prerequisite courses required of all the professional programs and so do not lose valuable time prior to selecting a major.

The Open Option Plan

In the Open Option Plan, you may complete the core courses in the first-year curriculum without selecting a profession in which to major and without loss of valuable time. Upon satisfactory completion of the first year of courses, you select a professional area in which to major. Professions in the college include: pharmacy, health record administration, medical laboratory science, respiratory therapy, and toxicology.

The courses offered in the first-year Open Option include:

- Functions and Basic Calculus
- General Chemistry I and II
- General Biology
- Animal Biology
- Freshman Writing
- Introduction to Literature
- Professional Dynamics in the Health-Care Delivery System

Satisfactory completion of the eight courses in the Open Option core curriculum, as well as other courses completed during the freshman year, guarantees you admission to one of the professional programs of the college.

The Open Option Plan does not apply to the Dental Hygiene and Physician Assistant programs.

Dental Hygiene

Professional Preparation

Aims The Forsyth School for Dental Hygienists conducts a program of dental hygiene education in cooperation with Northeastern University. Students in this two-year program attend classes at both the Forsyth Dental Center and Northeastern. The dental hygienist is licensed to render preventive services to a patient under the supervision of a dentist, including administering dental prophylactic treatment, preparing dental radiographs, and teaching prescribed methods of maintaining dental health.

A View of the Program The first year includes courses in anatomy, chemistry, microbiology, histology, nutrition, dental materials, radiology, periodontology, dental hygiene, and clinical dental hygiene instruction. In the second year, students take general courses, such as English, sociology, and psychology, and professional courses in pathology, public health, pharmacology, dental hygiene, and head and neck anatomy; they also continue to receive clinical dental hygiene instruction.

Degrees Students completing the program will receive the Certificate in Dental Hygiene from Forsyth and the Associate in Science degree in Dental Hygiene from Northeastern University. Graduates are required to take the state board examinations in the state in which they intend to practice.

Accreditation

This program is accredited by the Commission on Accreditation of Dental and Dental Auxiliary Education Programs of the American Dental Association.

Other Information

Students are admitted directly to the Forsyth School for Dental Hygienists and should contact the school for catalogs and applications by writing to 140 The Fenway, Boston, Massachusetts 02115.

Sample Freshman-Year Program of Studies in Dental Hygiene

First Quarter

Functional Human Anatomy
Chemistry
Dental Anatomy
Radiology
Dental Hygiene
Clinical Dental Hygiene

Third Quarter

Microbiology
Dental Materials
Periodontology II
Dental Hygiene
Clinical Dental Hygiene
Nutrition

Second Quarter

Functional Human Anatomy
Chemistry
Histology
Dental Hygiene
Clinical Dental Hygiene
Periodontology I

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
English Composition and English Literature†	8	Foundations of Psychology I†	4
Chemistry*	8	Sociology†	4
Microbiology*	4	Functional Human Anatomy*	10

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Dental Anatomy*	2	Pathology†	3
Radiology*	2	Periodontology**	4
Dental Hygiene†	12	Public Health†	2
Clinical Dental Hygiene**	23	Pharmacology†	2
Nutrition*	2	Head and Neck Anatomy†	2
Histology*	2	Dental Materials*	2
		Independent Study†	2

*These courses are usually taken in the first year.

†These courses are usually taken in the second year.

**These courses are usually taken in both the first and second years.

Health Record Administration

Judith Weilerstein, M.P.H., *Associate Professor and Director*

Instructor

Sheryl A. Rimer, B.S.

Professional Preparation

Aims A health record administrator may organize, operate, and manage medical record services. Northeastern's program offers students the opportunity to develop the capability to design health information and retrieval systems; to plan, organize, and direct medical record services; to develop, analyze, and evaluate medical records and indexes; to work with medical and administrative staffs in developing methods for evaluation of patient care; and to participate in research projects utilizing health-care information.

A View of the Five-Year Major In the first two years, the student will concentrate on liberal arts and sciences, including the required human anatomy and physiology courses with an overview of microbiology. Courses in health-care science are offered to help the student prepare for a role in health administration and health-care delivery.

The program offers the opportunity for preparation in administration, in departmental and hospital management and organization, and in electronic data processing. The professional courses in medical record science, medical terminology, and hospital law are complemented by directed applied study in medical record science at an affiliated health facility.

Degree The Health Record Administration program is offered on the cooperative plan. Successful completion of the prescribed curriculum, in-

cluding directed study at an affiliated health center, will permit the award of a Bachelor of Science degree. Usually, graduates are eligible to take the registration examination given by the American Medical Record Association.

Accreditation

This program is approved by the Committee on Allied Health Education and Accreditation in cooperation with the American Medical Record Association.

Special Information

Students interested in this profession should arrange for an interview with the program director.

Sample Freshman-Year Program of Studies in Health Record Administration

First Quarter

English Composition
Biology
Math
Psychology
Orientation to Health Records I

Third Quarter

Psychology
Modern Language or
Political Science
Elective
Microbiology

Second Quarter

Biology
Math
Modern Language or
Political Science
Orientation to Health Records II
English Literature

In addition to the above courses, students may choose to take ROTC.

Basic Course Requirements

I. General Requirements

Course	Q.H.	Course	Q.H.
English Composition and English Literature*	8	Organizational Behavior	4
Mathematics*	8	Introduction to Computer Science	4
Communications	4	Psychology*	8
Biology (General and Animal)*	8	Sociology†	4
Anatomy and Physiology†	10	Modern Language or Social Sciences*	8
Microbiology†	3	General Electives	16
Statistics	4		
Economics or Western Civilization	8		



II. Professional Requirements

Course	Q.H.	Course	Q.H.
Orientation to Health Records	2	Seminar in Medical Records	2
Health Records Science I-IV	16	Health Science Education Applied Study	2 9
Medical Terminology	4	Hospital Organization and Management	4
Foundations of Medical Science	6	Application of Medical Computers	4
Hospital Law	2	Dynamics of Health-Care Systems*	2
Organization and Management Medical Record Dept.	12	Quality Assurance	4
Applied Health Statistics	4	Independent Study	4
Clinical Seminar	2	Special Topics**	4

*These courses are usually taken in the freshman year.

†These courses are usually taken in the sophomore year.

**Assigned per Program Director.

Medical Laboratory Science Medical Technology

Professor

James J. Gozzo, Ph.D.

Associate Professors

Judith T. Barr, M.Ed.

Gerald L. Davis, Ph.D.

Britta L. Karlsson, M.S.

Assistant Professors

Jessie L. Hansen, M.S.

John Klaas, II, Ph.D.

Elizabeth G. Szymczak, M.S.

Professional Preparation

Aims Medical technology involves the application of principles of natural, physical, and biological sciences to the performance of laboratory determinations used in the diagnosis and treatment of disease and the maintenance of health. It is projected that the demand for properly educated and certified medical technologists will increase as a result of greater emphasis on the quantity and quality of health-care delivery. With educational opportunities available in hematology, immunohematology, clinical chemistry, and clinical microbiology, students have the opportunity to prepare themselves for positions not only in a hospital laboratory but also in research, industrial, and governmental institutions.

For qualified graduates, additional opportunities may be found in laboratory administration, education, and graduate programs.

A View of the Five-Year Major Students enter the College as Health Professions majors in the Medical Laboratory Science program. The College offers a five-year, modified cooperative course of study leading to the degree of Bachelor of Science. Upon completion of the professional seg-

ment and baccalaureate degree, the student should be eligible to take a written national certification examination in medical technology. Some states may require additional licensure examinations.

During the junior and senior years, qualified students are assigned to the hospital components of the medical technology program. To qualify for entrance into the hospital component of the program, students must have an acceptable grade point average; have completed successfully all University course requirements, including those in biology, chemistry, mathematics, and medical laboratory science; and have met other criteria established by the Clinical Studies Admission Committee. The professional courses in hematology, pathogenic microbiology, serology, mycology, parasitology, clinical chemistry, instrumentation, and blood banking are included in both the University and the hospital components of the program.

Students register at the University for twelve quarters, including two interim sessions of five days each. This twelve-quarter curriculum includes the academic program plus all current clinical and professional requirements.

Degree The degree granted will be the Bachelor of Science.

Accreditation

This program is approved by the National Accrediting Agency for Clinical Laboratory Sciences and the Commission on Allied Health Education of the American Medical Association.

Option

After completing the first two years of academic study and the basic professional courses, qualified students may take the appropriate practicum leading to eligibility to take a national certification examination for medical laboratory technicians and may earn the Associate's degree at the University.

Sample Freshman-Year Program in Medical Laboratory Science

First Quarter

Math or Calculus
General Chemistry
General Biology
English Composition

Second Quarter

Math or Calculus
General Chemistry
Animal Biology
Elective
Orientation to Medical Laboratory
Science

Third Quarter

Elective
English Literature
Elective
Basic M.L.S. Urinalysis
Analytical Chemistry

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
English and English Literature*	8	Genetics and Developmental Biology	4
Biology—General and Animal*	8	Physics	8
Math or Calculus*	8	Microbiology	3
General Chemistry*	10	Humanities Electives	12
Organic Chemistry†	10	Social Science Elective	12
Analytical Chemistry*	4	General Electives	12
Physiology†	8	Professional Elective	4
Cell Biology	4		

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Orientation to Medical Laboratory Science*	1	Clinical Chemistry II, III, IV	6
Basic Medical Laboratory Science*	3	Clinical Microbiology II, III, IV	6
Basic M.L.S. Hematology I	3	Applied Study (at hospital)	15
Basic M.L.S. Hematology II†	3	Communications in the Health Sciences	4
Basic M.L.S. Clinical Immunology†	3	Laboratory Management	2
Basic M.L.S. Immunohematology†	3	Health Science Education	2
Basic M.L.S. Chemistry and Instrumentation†	5	Instrumentation I	1
Basic M.L.S. Clinical Microbiology†	6	Parasitology	2
Hematology III	3	Mycology	2
Immunohematology	2	Senior Seminar	2
Hematology IV	2	Special Topics	2

*These courses are usually taken in the freshman year.

†These courses are usually taken in the sophomore year.

Pharmacy

Medicinal Chemistry Section

Professors

Roger W. Giese, Ph.D.
John L. Neumeyer, Ph.D.
Robert F. Raffauf, Ph.D.

Assistant Professor

Simon H. Kuttub, Ph.D.

Pharmaceutics Section

Leon D. Shargel, Ph.D.,
*Associate Professor and
Acting Section Leader*

Professor

Pierre F. Smith, Ph.D.

Pharmacology Section

Richard C. Deth, Ph.D.,
*Associate Professor and
Acting Section Leader*

Professors

O. James Inashima, Ph.D.
Elliot Spector, Ph.D.

Associate Professor

Jeffrey B. Blumberg, Ph.D.

Assistant Professor

Norman R. Boisse, Ph.D.

Pharmacy Practice

Larry N. Swanson, Pharm. D.,
*Associate Professor and
Section Leader*

Professors

Arnold S. Goldstein, L.L.M.
Gerald E. Schumacher, Ph.D.

Associate Professor

Albert H. Taubman, Ph.D.

Assistant Professors

Barbara Ameer, Pharm. D.
David Barnard, Ph.D.
Robert J. Cersosimo, Pharm. D.
Samuel J. Matthews, Pharm. D.
Paul A. Michelson, M.S.
Alan H. Mutnick, Pharm. D.
Fred M. Schneiweiss, Pharm. D.

Professional Preparation

Aims The need for well-qualified pharmacists is likely to continue in direct response to the greater emphasis on health care and, in particular, to the newer and more diversified utilization of those now in practice in this country. The majority of pharmacists are associated with community practice, and some of these are self-employed. Hospital pharmacy and institutional practice have attracted a large number of practitioners and represent the fastest-growing areas of the profession. The increased use of the pharmacist as a drug consultant to the medical and nursing staffs of these institutions has broadened the scope of professional opportunity and given practitioners even greater involvement as part of the health team.

Pharmacy also offers careers in research, manufacturing, government, law enforcement, and education. A considerable number of our graduates have entered leading graduate and professional schools. Another significant trend is found in the increasing number of women entering the profession. Approximately one-third of the entering class is now composed of women.

A View of the Five-Year Major The College offers a five-year curriculum that leads to the degree of Bachelor of Science in Pharmacy. The curriculum includes instruction in each of three natural divisions: (1) arts and sciences courses in general education (the humanities and social sciences); (2) mathematics and the basic physical and biological sciences; and (3)



courses in the areas of professional instruction—medicinal chemistry, pharmacology, pharmaceuticals, pharmacy administration, and clinical pharmacy.

The curriculum offers a progressive approach to pharmaceutical education. Emphasis is placed on the biologic and chemical applications of drug therapy, and the College maintains affiliations with several major teaching hospitals in which students undertake a clinical clerkship in their last professional year. The range of professional electives offered within the College, as well as those approved professional electives offered by the other basic colleges, provides program flexibility, thus giving students the opportunity to specialize. Teachers throughout the College use up-to-date concepts in educational techniques, including audiovisual material and directed-study opportunities. The academic program is carefully coordinated with the cooperative education assignment to provide for periodic exposure to the actual practice of pharmacy.

In addition, through the Graduate School of Pharmacy and Allied Health Professions, programs leading to the Master of Science and Doctor of Philosophy degrees are offered. A new graduate program in clinical pharmacy leading to the Doctor of Pharmacy (Pharm. D.) degree is also available for a limited number of qualified baccalaureate graduates.

Graduation Requirements

Degree Candidates for the Bachelor of Science in Pharmacy degree must complete all prescribed work of the curriculum and meet the requirements of the Department of Cooperative Education before they become eligible for their degrees.

No student transferring from another college or university is eligible to receive a degree until the last three years of academic work immediately preceding graduation have been completed at Northeastern. Exceptions to this requirement may be made for students transferring from another college of pharmacy.

Graduation with Honors

Candidates who have attained superior grades in their academic work will be graduated with honors. Upon special vote of the faculty, a limited number of this group may be graduated with high honors or with highest honors. Students must have been in attendance at the University for at least six quarters before they become eligible for honors at graduation.

Accreditation

The undergraduate pharmacy program offered by the College of Pharmacy and Allied Health Professions subscribes to the standards established by the American Council on Pharmaceutical Education and the American Association of Colleges of Pharmacy, of which it is a member.

Licensure—Pharmacy

Pharmacists must meet certain requirements to obtain a license from the state in which they wish to practice. These requirements ordinarily include graduating from an accredited college of pharmacy, passing an examination given by a State Board of Pharmacy, and completing an "internship," or apprenticeship.

The internship is a period of supervised practical experience in a preceptor pharmacy. This is generally satisfied during the cooperative work periods commencing at the end of the student's second academic year. The salary earned during these periods of full-time employment may be used to help defray educational expenses. Students may apply up to 400 hours of the required academic clinical clerkship experience to their in-

ternship requirements. In addition, a college-directed externship adds to the total practice-oriented portion of the curriculum.

Sample Freshman-Year Program of Studies in Pharmacy

First Quarter

Basic Math
General Chemistry
Arts and Sciences Electives

Second Quarter

Calculus
Arts and Sciences Elective
Biology
English

Third Quarter

Biology
English
General Chemistry
Basic Pharmacy

In addition to the above courses, students may choose to take Basic ROTC.

Basic Course Requirements

I. General Requirements

Course	Q.H.	Course	Q.H.
Basic Math*	4	Anatomy-Physiology	10
Calculus*	4	Biochemistry	5
General Chemistry*	10	Arts and Sciences	
English*	8	Electives (8)	32
Biology*	8	Social Psychology	4
Physics†	8		
Organic Chemistry†	10		

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Basic Pharmacy*	3	Professional Electives (3)	12
Pharmaceutics I & II, including Laboratory	11	Professional Practice Lab	1
Medical Chemistry/ Pharmacology I-III	16	Therapeutics/Clinical Pharmacokinetics	9
Drug Analysis	5	Caring for Patients: Psychosocial Aspects of Illness	4
Pathology	4	Pharmacy Management	4
Toxicology	4	Anti-Infectives:	
Biopharmaceutics/ Pharmacokinetics	4	Structure and Action	5
Pharmacology Lab I & II	2	Parapharmaceuticals	2
Jurisprudence	4	Non-Prescription Medication	4
Pharmacy Administration	4	Interpersonal Skills for Health Professionals	4
Clinical Pharmacy			
Clerkship	15		
Placement Techniques	1		

*These courses are usually taken in the freshman year.

†These courses are usually taken in the sophomore year

Toxicology

David R. Brown, Sc.D., *Associate Professor and Director*

Assistant Professor

Eileen H. Silver, Sc.D.

Professional Preparation

Aims Toxicology is the study of the injurious effects of substances on living organisms. It is often considered a subdivision of pharmacology, the study of chemical interactions between substances and biological objects. Toxicology can be considered as the science that defines the limits of safety of chemicals and other substances. Thus, one of the chief responsibilities of the toxicologist is prediction. By gathering sufficient data on the identification and toxicity of materials and adequate knowledge of the mechanisms by which effects are produced by materials, the toxicologist can make reasonable predictions of their hazard and impact in the biosphere.

The activities and contributions of toxicologists are many and varied. The profession's subdivisions of materials, radiation, and veterinary toxicology illustrate the diversity of investigations in which toxicologists may participate. The toxicologist working in the biomedical area is concerned with intoxications by drugs and other chemicals as well as the demonstration of drug safety or danger prior to release on the market.

Clinical toxicologists may be involved with:

1. antidotal treatment of poisoning
2. drug abuse, addiction, and detoxification
3. drug monitoring and drug interactions
4. teratogenesis (drug-induced birth defects) and other toxicity-screening procedures

Industrial or environmental toxicologists are concerned with the recognition, identification, and quantitation of relative hazard from occupational or public exposure to toxicants. This concern is closely related to private and government responsibilities to ensure the safety of workers and the general public in contact with industrial and commercial products.

Industrial or environmental toxicologists may be involved with:

1. chemical carcinogens
2. pesticides or other "economic poisons"
3. air, soil, and water pollution
4. food additives

Forensic toxicology is a hybrid of analytical chemistry and fundamental toxicological principles, and is concerned with the medicolegal aspects of the harmful effects of chemicals.

Forensic toxicologists may be concerned with:

1. the cause of death in postmortem investigations
2. isolation and detection of toxicants in biologic material
3. drug-abuse monitoring programs
4. medicolegal aspects of poisoning

The faculty of Northeastern University's College of Pharmacy and Allied Health Professions feels that increased concern over the safety of drugs, chemicals, and cosmetics in the human population and in the environment, as well as new legislation regarding toxic substances, creates a high demand for toxicologists at the Bachelor of Science level. One of the College's principal goals is to help train qualified professionals who will strive to meet the health-care needs of society. The concept of an undergraduate degree in toxicology is relatively new, brought about by the demands of an increasingly complex chemical environment. Currently, only three institutions offer B.S. degrees in toxicology, although a few more schools are planning

such programs. Yet, there is an estimated need for 5,000–10,000 people with bachelor's degrees to act as technical support staff for Ph.D.-level toxicologists.

Northeastern University has created an innovative program in which its diverse academic resources offer training to this new breed of toxicologist. The core curriculum is enhanced by contributions from the University's Institute of Chemical Analysis, Applications, and Forensic Sciences, the Northeastern University Marine Science Institute in Nahant, and the Environmental Engineering faculty.

Recent manpower studies sponsored by private and federal agencies predict a great demand for toxicologists. Although a need for toxicologists existed prior to 1970, the introduction of numerous federal and local laws aimed at protecting the environment, safeguarding employees in their workplace, and protecting consumers against hazardous household products has created a critical shortage of toxicologists. Employment opportunities are being created in industry (chemical, cosmetic, and pharmaceutical firms) and government (for example, Environmental Protection Agency, Food and Drug Administration, National Institute of Occupational Safety and Health) as well as in police departments and various clinical settings. Students may also consider entering graduate programs in toxicology.

A View of the Five-Year Major The Toxicology program leads to the Bachelor of Science degree in five years under the cooperative plan. The curriculum is a combination of liberal arts, science, and professional courses that offer students the opportunity to prepare themselves to practice toxicology in a variety of settings. Required and elective professional courses offer students the most current material. The professional elective courses may be selected from Medical Laboratory Science, Chemistry, Biology, Sociology, Criminal Justice, Computer Programming, Mathematics, and Earth Sciences.

Toxicology students begin their cooperative experience in the sophomore year.

Degree The degree granted will be the Bachelor of Science in Toxicology.

Sample Freshman-Year Program of Studies in Toxicology

First Quarter

Mathematics
Elective
Biology
English

Third Quarter

Calculus
English
Arts and Sciences Elective
General Chemistry

Second Quarter

Calculus
General Chemistry
Biology
Elective

In addition to the above courses, students may choose to take Basic ROTC.

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
Math*	4	Anatomy-Physiology†	10
Calculus*	8	General Biochemistry	4
General Chemistry*	10	Clinical Biochemistry	4
English*	8	Microbiology	4
Biology*	8	Biostatistics and Computers†	4
Physics†	8	Identification of Organic Compounds	3
Organic Chemistry†	10	Instrumental Analysis	5
Environmental Problems†	4	Electives	44

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Drug Analysis	5	Drug Interactions	4
Medicinal Chemistry/ Pharmacology I-III	16	Public Health	4
Identification of Drug Abuse	4	Epidemiology	4
Pathology	4	Medical Laboratory Sciences	6
Toxicology I, II, III, IV	16		
Pharmacology Laboratory I, II	2		
Toxicology Laboratory	2		

*These courses are usually taken in the freshman year.

†These courses are usually taken in the sophomore year.

Physician Assistant

Suzanne B. Greenberg, M.S., *Director*

Professional Preparation

Aims This is a program for the education of the primary-care physician assistant, a skilled person qualified by academic and clinical training to provide patient services under the supervision and responsibility of a doctor of medicine. The Physician Assistant may work in a variety of settings, such as a physician's office, clinic, hospital, or nursing home. It is expected that the Physician Assistant will be able to do at least the following: elicit a detailed and accurate history, perform a physical examination, perform routine procedures such as the drawing of blood samples, give injections, suture and care for wounds, counsel the patient on matters relating to health, and provide evaluation and treatment in life-threatening emergencies.

A View of the Major This twenty-two-month program, which begins in September, includes didactic work and clinical rotations in medicine, surgery, pediatrics, emergency medicine, psychiatry, obstetrics, gynecology, and primary care at teaching hospitals. Upon satisfactory completion of the

program, students will be awarded a certificate by the University and are eligible to take the National Certifying Examination given by the National Commission on Certification of Physician's Assistants. Some states require successful completion of this examination in order to practice.

Special Requirements Applicants to the program must have successfully completed a minimum of three years of college, including courses in chemistry and biology at the college level. (Since the educational attainment of a majority of applicants exceeds the minimum requirements, those accepted often hold baccalaureate degrees.) In addition, successful applicants must have had at least one year of direct patient-care experience. The program is not designed for the high school senior entering an institution of higher learning for the first time.

Scholastic Aptitude Test scores are required for applicants. Application materials may be obtained by contacting the Physician Assistant Program Office at 202 Robinson Hall or by telephoning (617) 437-3195.

Accreditation

The Physician Assistant program meets the requirements established by the Council on Medical Education of the American Medical Association as essential for an approved educational program to train primary-care physician assistants. Membership in the Association of Physician Assistant Programs is maintained. The program is also approved by the Massachusetts Board of Approval and Certification of Physician Assistant Programs.

Other Information

This program is offered by Northeastern University in cooperation with the Massachusetts Medical Society and the Office of Special Programs in the Department of Health and Human Services. Lecturers for the program include faculty from medical schools in the Boston area.

Sample First-Year Program of Studies in the Physician Assistant Program

First Quarter

Human Anatomy
Essentials of Physical Diagnosis
Principles of Interviewing
Basic Medical Laboratory
Science
Patho-Physiology and Medicine I
Roles, Rules, Ethics, and
Resources for Physician
Assistants
Medical Physiology

Second Quarter

Principles of Obstetrics
and Gynecology
Patho-Physiology and Medicine II
Physiologic Basis of Disease:
Neurology
Principles of Pediatrics
Principles of Psychiatry
Basic Diagnostic
Radiology
Basic Pharmacology

Third Quarter

Patho-Physiology and
Medicine III
Principles and Concepts of
Surgical Intervention in
Disease Processes
Concepts and Principles of
Emergency Medicine
Fundamentals of
Electrocardiography
Orthopedics
Introduction to Clinical Practice

Basic Course Requirements**II. Professional Requirements**

Course	Q.H.	Course	Q.H.
Medical Care and Current Social Problems	2	Basic Medical Laboratory Science	4
Essentials of Physical Examination	5	Basic Pharmacology	3
Principles of Interviewing	2	Medical Therapeutics	3
Principles of Psychiatry	3	Survey of Rehabilitation Medicine	2
Physiologic Basis of Disease: Neurophysiology	2	Basic Diagnostic Radiology	2
Patho-Physiology and Medicine I, II & III	6	Principles of Obstetrics and Gynecology	3
Principles of Pediatrics	3	Fundamentals of Electrocardiography	2
Principles and Concepts of Surgical Intervention in Disease Processes	3	Roles, Rules, Ethics and Resources for Physician Assistants	2
Nutrition	3	Patient Education and Counseling	2
Medical Ethics	3	Applied Study I, II, III, IV, V	20
The Aging Process	3	Emergency Medicine	3
Human Anatomy	2		
Medical Physiology	6		
Orthopedics	2		

Respiratory Therapy

Thomas A. Barnes, Ed.D., *Associate Professor and Director*

Associate Professor

Patrick F. Plunkett, M.S.

Instructors

Sigute V. M. Perrault, B.A.

Margaret A. Stewart, B.S.

Assistant Professors

Martha R. Brock, M.S.

Mary E. Fitzmaurice, M.Ed.

Jon O.Nilsestuen, Ph.D.

Professional Preparation

Aims Respiratory therapy is an allied-health specialty, instrumental in the diagnosis, treatment, management, and preventive care of patients with cardiopulmonary problems. These patients may be found in newborn nurseries, surgical and medical wards, emergency rooms, outpatient departments, and intensive care units of hospitals. They may be suffering from a variety of acute and chronic conditions that are either life threatening or disabling.

Patients suffering a multiplicity of disorders from head injuries may require supportive mechanical ventilation. With the assistance of sophisticated ventilatory and monitoring equipment designed specifically for artificial ventilation, respiratory therapists become an intricate and essential part of the critical-care team. Through proper respiratory care and management, many patients who would not have survived are now being returned to an active life. In essence, the respiratory therapist is a life-support specialist.

In the hospital, "Code Blue, Code 99, Dr. Heart, Dr. Pacemaker" are all calls that may signify a life-and-death situation of cardiac and/or pulmonary

arrest. The calls alert respiratory therapists to respond as members of an emergency cardiopulmonary arrest team, working alongside physicians and nurses. Respiratory therapists become responsible for life support of the patient through airway management, artificial ventilation, external cardiac massage, and many other sophisticated emergency support measures.

While intensive respiratory care is essential, routine patient care is equally important. Working under physician's orders, respiratory therapists carry out specific therapeutic measures to assist respiratory-distressed patients. Respiratory therapists must be experts in providing and recommending specialized and selective therapeutic respiratory care. They must be competent in such areas as medical gas administration, including oxygen; humidification, aerosols, and intermittent positive pressure breathing (IPPB); bronchopulmonary drainage and exercises, cardiopulmonary resuscitation, mechanical ventilation, airway management, and pulmonary function studies; blood gas analysis; and physiologic monitoring. Because respiratory therapy procedures may alter the patient's physiologic status, astute patient care and observation by trained respiratory therapists are essential.

Respiratory therapists are involved in the treatment of cardiac and pulmonary ailments such as cardiac failure, asthma, pulmonary edema, emphysema, cerebral thrombosis, drowning, hemorrhage, and shock.

Medications are delivered in such forms as aerosols or sprays through mechanical devices. These medications are then transmitted through the airways so that they may act on local areas within the lungs, as well as be diffused into the body's circulatory system.

Respiratory therapists make use of a variety of testing techniques to assist in medical research and diagnosis of disorders. One example is the use of radioactive gases or aerosols which are then safely administered to the patient through the respiratory system. Various portions of the lung may be screened and evaluated for obstructions, restrictions, and other abnormalities. Another example is the securing of lung secretions for cancer diagnosis. The most common diagnostic examinations are the measurement of lung volumes and capacities, and flow patterns and pressures.

Today, the field of respiratory technology is expanding even more rapidly to keep pace with the demand for new techniques to cope with environmentally related problems such as smoking and air pollution. New techniques also have been developed for use in the treatment of gangrene, carbon monoxide poisoning, tetanus, and many other disorders.

A View of the Major Students enter the College as majors in the Respiratory Therapy program. Mathematics, chemistry, and the physical, biological, medical, and health sciences offer the bases for professional instruction in Respiratory Therapy. English, psychology, and elective courses in the humanities and social sciences offer a general educational background. Clinical study at the affiliated hospitals provides the opportunity for direct patient care and the immediate application of highly specialized techniques.

Degree The curriculum leads to the Bachelor of Science degree in Respiratory Therapy and includes academic quarters at the University, a structured clinical program, and assigned co-op quarters. Successful completion of the first three years of the program makes students eligible for the first part of the examinations administered by the National Board for Respiratory Therapy.

Accreditation

This program is accredited by the American Medical Association.

Sample Freshman-Year Program of Studies in Respiratory Therapy**First Quarter**

English Composition
 General Chemistry
 Basic Animal Biology
 Respiratory Therapy Seminar I
 Algebra and
 Trigonometry

Second Quarter

English Literature
 Calculus
 Respiratory Therapy Seminar II
 Basic Animal Biology
 Physics

Third Quarter

Microbiology
 General Chemistry
 Respiratory Therapy Seminar III
 Elective
 Professional Dynamics
 in the Health-Care
 Delivery System

Basic Course Requirements**I. General Requirements**

Course	Q.H.	Course	Q.H.
Biology	8	Pharmacology	4
Anatomy and Physiology	10	English Composition and Literature	8
Microbiology	4	Management Principles*	4
General Chemistry	10	Arts and Sciences electives	16
Organic Chemistry*	10	Arts and Sciences electives*	12
Physics	4		
Algebra and Trigonometry	4		
Calculus	4		

II. Professional Requirements

Course	Q.H.	Course	Q.H.
Respiratory Therapy Seminars	3	Respiratory Care for the Critical Patient	4
Clinical Seminars	2	Introduction to Pediatric Respiratory Care	2
Advanced Clinical Seminars I, II, III, IV*	4	Cardiopulmonary Lab Technology	3
Professional Practice Labs I, II, III, IV	4	Cardiopulmonary Lab Practice	1
Cardiopulmonary Physiology	4	Clinical Practice I	6
Advanced Clinical Physiology*	4	Clinical Practice II	6
Cardiopulmonary Disease Foundations of Medical Science	4	Advanced Life Support Systems I, II*	8
Hospital Law and Ethics	2	Advanced Medical Monitoring*	4
Medical Terminology	1	Respiratory Care for the Neonatal Patient*	4
Introduction to Patient Care	2	Practicum in Critical Care I, II*	8
Introduction to Respiratory Care	3	Directed Study*	2
Respiratory Care for the Med-Surgical Patient	4		

*Additional requirements for the Bachelor of Science degree in Respiratory Therapy.

University College

Alternative Freshman-Year Program

Program Goals

Northeastern University's highly successful Alternative Freshman-Year Program is designed for students who want to go to college but whose high school records do not reflect their true abilities. Because it is structured to assist students in making the academic and social adjustments necessary for success in college, this program may be the answer for those who feel that their potential is not reflected by their high school records and/or believe that they are not ready to undertake a full college curriculum.

The Alternative Freshman-Year Program is specifically designed to help students strengthen their basic academic skills in writing as well as mathematics. While helping them gain confidence in their ability to do college-level work, the program also offers them an opportunity to sample different areas of study before committing themselves to a specific major. Through the combination of a carefully prescribed curriculum and the attention of professional counselors, each student is helped to establish a program suited to his or her individual needs. These same counselors are normally available on a continuing basis throughout the student's entire freshman year.

Developed in collaboration with University College, a division of Northeastern serving students who seek a flexible college program, the Alternative Freshman-Year Program has a proven record of success in assisting students to develop their full potential. Many students who began their college careers in the program have attained sophomore status and have continued on to regular degree programs at the University.

Program Structure

Students in the Alternative Freshman-Year Program begin with ten quarter hours of credit in their first academic quarter. In their second and third quarters, students accelerate their schedules of course work to take, respectively, fourteen and sixteen quarter hours of credit.

After completing at least forty hours of credit, students may continue their degree programs within University College or transfer, with sophomore status, to the College of Business Administration or the College of Criminal Justice, or enroll as sophomore social science or humanities majors in the Boston Bouvé College of Human Development Professions or the College of Arts and Sciences.

Faculty and Resources

The University has carefully selected for the Alternative Freshman-Year Program faculty members who are aware of individual student goals as well as the needs of students working to adjust to a college program. Faculty and students meet in small classes of not more than twenty-five students.

As members of the program, students are considered regular Northeastern University day students even though they have unique schedules and a distinctively tailored curriculum. Therefore, they generally have access to all counseling services, physical education facilities, dormitory arrangements, and extracurricular programs at the University's main campus in Boston.

Alternative Freshman-Year students are encouraged to make extensive

use of the up-to-date programmed learning resources available for self-instruction through Northeastern's Learning Resources Center on the Boston campus. For additional assistance, Alternative Freshmen are also frequently referred to the University's Reading Clinic and/or Writing Center on the Boston campus. A third and very important resource, the Counseling and Testing Center, is also available to students on both the Boston and Burlington campuses for personal and academic counseling, as well as for vocational testing and counseling.

University College Alternative Freshman-Year Program

Business Track: One-Year Program

Quarter 1			Quarter 2		
No.	Course	Q.H.	No.	Course	Q.H.
10.100	Math I*	4	10.110	Math II*	4
30.400	Fund. of English I*	4	23.309	Hist. of Civ. A	4
51.531	Integ. Language	30.402		Fund. of English II*	4
	Skills Dev. I*	2	51.532	Integ. Language	
				Skills Dev. II*	2
Total Quarter Hours		10	Total Quarter Hours		14

Quarter 3		
No.	Course	Q.H.
10.118	Math. for Bus.	4
23.310	Hist. of Civ. B	4
39.601	Economics I	4
49.499	Mgmt. & Org.	4
Total Quarter Hours		16

*Compensatory course.



**Criminal Justice, Education, or Arts and Sciences Track:
One-Year Program**

Quarter 1			Quarter 2		
No.	Course	Q.H.	No.	Course	Q.H.
23.309	Hist. of Civ. A	4	21.401	Sociology I	4
30.400	Fund. of English I*	4	22.401	Pol. Science I	4
51.531	Integ. Language		30.402	Fund. of English II*	4
	Skills Dev. I*	2	51.532	Integ. Language	
				Skills Dev. II*	2
Total quarter Hours		10	Total Quarter Hours		14

Quarter 3		
No.	Course	Q.H.
21.402	Sociology II	4
22.402	Pol. Sci. II	4
23.310	Hist. of Civ. B	4
	Elective	4
Total Quarter Hours		16

*Compensatory course.

Tuition and Fees

Tuition and fees for the Alternative Freshman-Year Program are the same as for students in the Basic Colleges (see page 203 for details). Payment of the standard tuition during the first three academic quarters of residence entitles students to forty-eight credit hours of instruction. Thus, those who take the forty programmed credits are entitled to an additional eight credits as upperclassmen at no additional charge.

Application Procedures

For further information on the Alternative Freshman-Year Program, or to request an application, please write or call:

Dean of Admissions
Department of Admissions
Northeastern University
360 Huntington Avenue
Boston, Massachusetts 02115
Telephone: 617-437-2200

Other Schools and Colleges of the University

Lincoln College

In addition to full-time curricula described earlier in this bulletin, Lincoln College offers interdisciplinary and certificate programs providing technological and professional development opportunities to meet special needs of the part-time student. These programs provide educational opportunities for students who must pursue full-time employment but who desire to initiate or continue their academic work.

The part-time evening program includes pretechnology preparatory courses and degree programs leading to the Associate in Engineering (A.E.), the Associate in Science (A.S.), and the Bachelor of Engineering Technology (B.E.T.). The B.E.T. and A.E. degrees may be earned in Civil, Mechanical, Electrical, and Computer Technology. The A.S. degree may be earned in the Mathematical, Physical, or Chemical Sciences and in Aviation Technology.

University College

University College is committed to the education of mature adult students who wish to live effectively in today's complex society. Programs are specifically designed to satisfy their changing professional, cultural, and social needs and interests.

Degree programs have been developed in thirty-nine major fields of study in business administration, arts and sciences, law enforcement, and health-related areas. Flexible curricula are offered on a part-time basis Monday through Saturday during day and evening hours convenient to adult students. Students may select single courses or may enroll in full degree programs leading to the Associate in Science or the Bachelor's degree. Classes are scheduled in locations accessible to the urban and suburban communities. Students may attend classes at the Huntington Avenue Campus in Boston or the Suburban Campus in Burlington, Massachusetts, as well as at many other off-campus locations north, south, and west of Boston.

Academic advisers are available by appointment day and evening in the University College Office of Academic and Student Affairs. They offer students assistance in planning a program suitable to their general educational and career objectives and answer questions relating to degree requirements, course sequence, and proper scheduling of courses. Appointments may be arranged by calling the University College Office, 617-437-2400, or by coming in person to 102 Churchill Hall. There is no charge for this service. Academic advisers are also available during registration at all registration sites. No appointment is necessary.

For a copy of the current University College *Bulletin*, please write or call: University College, Northeastern University, 360 Huntington Avenue, Boston, Massachusetts 02115, telephone 617-437-2400.

Graduate and Professional Schools

The following graduate and professional schools of the University offer day and evening programs leading to degrees.

Arts and Sciences

The Master of Arts degree may be earned in Economics, English, History, Political Science, Psychology, Sociology, and Social Anthropology. The Master of Science degree is available in Biology, Chemistry, Economic Policy and Planning, Mathematics, and Physics. The Master of Science in Health Science and the Master of Public Administration degrees are also offered. In addition, there is an Advanced Literary Study Program leading to the Certificate of Advanced Graduate Study, and programs leading to the Doctor of Philosophy degree in Biology, Chemistry, Economics, Mathematics, Physics, Psychology, and Sociology. Most programs may be completed through either full- or part-time study.

Boston-Bouvé College of Human Development Professions

The Master of Science degree may be earned, with specialization in Physical Education, Physical Therapy, or Recreation and Leisure Studies. Graduate courses in Health Education are available as electives within the College and for special students. Programs may be completed through full- and part-time study.

The Master of Education degree may be earned, with specialization in Counseling, Curriculum and Instruction, Early Childhood Education, Educational Administration, Educational Research, Human Development, Rehabilitation Administration, Special Education, or Speech-Language Pathology and Audiology. The Certificate of Advanced Graduate Study is offered in Counselor Education, Educational Administration, and Rehabilitation Administration. The Doctor of Education degree may be earned in Administration, with specialization in Counselor Education, Educational Administration, or Rehabilitation and Special Education.

The master's degree program in Speech-Language Pathology and Audiology is accredited by the Education and Training Board of the Boards of Examiners in Speech Pathology and Audiology.

Business Administration

A Master of Business Administration degree may be earned. The Graduate School of Business Administration offers a variety of programs to meet the needs and schedules of graduate business students. For those interested in pursuing an M.B.A. degree on a full-time basis, the Graduate School offers two program alternatives: a twenty-one-month Management Intern Program, which includes a six-month, paid professional internship; or a two-year traditional full-time program, which may include administrative or teaching assistantship opportunities. Individuals who wish to continue their full-time job responsibilities while earning an M.B.A. degree may consider either the evening part-time program of study or the eighteen-month Executive M.B.A. Program for upper-level managers. The Master of Science degree in professional accounting is an intensive, full-time program specifically designed for liberal arts and other nonaccounting majors.

Criminal Justice

The College of Criminal Justice offers both full- and part-time programs leading to a Master of Science degree in Criminal Justice and a Master of Science degree in Forensic Chemistry. Students enrolled in the Master of

Science program in Criminal Justice choose among three major concentrations of study—administration and planning, criminology, and correctional counseling. The Master of Science program in Forensic Chemistry provides an integrated survey of forensic science as utilized in criminalistics, toxicology, and related professional fields. An interdisciplinary Ph.D. program in Forensic Chemistry is also offered with specialization in Forensic Toxicology, Forensic Materials Science, or Forensic Analytical Chemistry. Students in either program attend classes during late afternoon and evening hours.

Engineering

The Master of Science degree may be earned, with specification in the field of Chemical, Civil, Electrical, Industrial, or Mechanical Engineering, or Engineering Management, including a six-year program in Power Systems Engineering leading to both bachelor's and master's degrees in Electrical Engineering; a special five-year honors program in Mechanical, Industrial, or Electrical Engineering leading to both bachelor's and master's degrees; the Professional Engineer degree in Mechanical, Industrial, or Electrical Engineering; the Doctor of Engineering degree in Chemical Engineering; and the Ph.D. degree in Electrical, Chemical, Civil, or Mechanical Engineering. A special interdisciplinary program leading to the Master of Science in Transportation is also offered.

Law

The School of Law offers a full-time program of professional instruction, leading to the degree of Juris Doctor (J.D.). It is fully accredited by the American Bar Association and the Association of American Law Schools. There are no courses for part-time or evening students.

Unique among American law schools, Northeastern's School of Law features cooperative legal education. Under this plan, each student is required to work full time at law for participating employers for four calendar quarters during his or her second and third years, alternating with equal periods of full-time course work. This blending of academic study and practical legal work experience, after a traditional first year of intensive academic study, is designed to offer the best possible preparation for the actual practice of law. Cooperating employers include large and small private firms, government agencies, legal assistance and public defender organizations, judges, unions, corporate law departments and virtually every type of legal practitioner. Employers are located nationwide.

Because the school operates twelve months a year, students complete the program on the same schedule as more traditional schools.

Pharmacy and Allied Health Professions

The Master of Science degree is offered in Hospital Pharmacy, Medical Laboratory Science, Clinical Chemistry, Medicinal Chemistry, Pharmacology, and Radiopharmaceutical Science. The Ph.D. degree is offered in Biomedical Science with specialization in Medical Laboratory Science, Medicinal Chemistry, Pharmaceutical Science, or Pharmacology. An interdisciplinary doctoral degree is available in Forensic Chemistry. A new graduate program in clinical pharmacy leading to the Doctor of Pharmacy (Pharm.D.) is scheduled to commence in the fall of 1981.

Professional Accounting

The Master of Science degree in Professional Accounting is offered. This concentrated 15-month program is designed for arts and sciences and other nonaccounting majors who anticipate careers in professional ac-

counting and who wish to prepare for the CPA examination. The five-quarter course includes a three-month internship with a leading CPA firm in the middle or winter quarter, thus providing both practical experience and financial support.

New classes start in mid-June of every year.

Some of these programs are offered on the cooperative plan; others provide teaching and research fellowships for able candidates.

The Center For Management Development

Richard J. Santos, M.S., *Associate Dean and Director*

John J. Leary, Jr., M.B.A., *Associate Director*

Bric A. Wheeler, M.B.A. Candidate, *Director of the Management Workshop*

Sponsored by the College of Business Administration, the Center for Management Development offers programs designed to provide opportunities for professional growth for middle and senior managers. Two programs are scheduled several times a year: the Management Development Program (MDP) and the Management Workshop. In both, participants are sponsored by their employers. The Center also designs and conducts special programs for a wide range of business organizations.



The MDP is a graduate-level course in business for managers who already have had responsibility for a major task, function, department, division, or independent enterprise. Six weeks of in-residence instruction are extended over a period of several months (October to February, January to May, or March to June).

The Management Workshop offers a comprehensive outline of the major areas of business through graduate-level courses in organizational behavior, financial analysis and control, operations management, marketing, and environmental analysis and planning. It meets for either twelve consecutive Fridays or twelve consecutive Mondays, beginning in September, January, and March. The Center can be reached by telephone at 617-437-3272.

The Center for Continuing Education

The Center for Continuing Education serves the community in a variety of ways. Programs range from public offerings of enrichment courses to state-of-the-art seminars in all engineering concentrations; from short-term, first-line training sessions in supervisory skills to concentrated three-week sessions for corporate executives; from workshops in nursing and other health professions to comprehensive programs in graphic arts management and food preparation; from special concentration seminars developed for a particular client company to the nationally known Urban Mass Transportation Management Seminars conducted by Northeastern University in conjunction with the United States Department of Transportation.

Insurance Institute

The Insurance Institute is sponsored by local insurance organizations and companies. It offers a number of noncredit courses in preparation for the Chartered Life Underwriter and Chartered Property-Casualty Underwriter designations, as well as for the General Insurance, Insurance Adjuster, and Risk Management Certificates. Telephone: 617-437-2506.

Part Three

Particulars of Education



Undergraduate Admissions

(139 Richards Hall)

Tel: 617-437-2200

Philip R. McCabe, M.Ed., *Dean*

Mary A. Zammitti, M.Ed., *Associate Dean and Director*

Assistant Directors

Steven B. Bissell, B.S.

Michael F. Clifford, B.S.

Eleanor W. Lambert, M.B.A.

Admissions Counselors

Viola F. Covington, B.A.

Robert D. Hunter, B.S.

J. Keith Motley, M.Ed.

Cornelius B. O'Leary, B.A.

To find a college or university that will suit personal needs and interests—a place where you can learn to feel at home and make sound preparation for a future career—is a goal of all students who plan to continue their education beyond secondary school. The goal can be achieved in a number of ways: by talking with enrolled students, faculty, and alumni; by reading catalogs; and by visiting college campuses. In fact, a college campus visit should be high on your list of priorities. Northeastern's Committee on Admissions extends a cordial welcome to all prospective freshman and transfer students and has planned a series of on-campus experiences to make a visit as worthwhile as possible.

The Admissions Conference

It is only natural that students should have many questions about Northeastern—its programs of study, its services to students, and the Cooperative Plan of Education. For this reason, the Committee on Admissions sponsors a series of Orientation Conferences for students. Offered at 10:00 a.m. and 2:00 p.m. on Mondays and Fridays from October 1 through May 1 (except for legal holidays), these conferences have been most successful in helping students become better acquainted with the University. They include comments by an admissions counselor, an informal question-and-answer period, and a multimedia presentation.

Special sessions are also held in the summer between July 1 and September 1. Further information about these summer conferences may be obtained from the Admissions Department.

Guided Tours

Student-guided tours of the campus are usually held daily, Monday through Friday, at 11:00 a.m. and 3:00 p.m. The admissions conference and the tour should both be scheduled in advance by writing or calling the undergraduate Admissions Office (617-437-2211). The opportunity to visit the University's facilities and to observe student life on campus is one important way to learn about Northeastern. Commuting students who wish to visit the University's Suburban Campus in Burlington are encouraged to do so. This will appeal especially to those whose home communities are located north or northwest of Boston.

The Interview

Although it is not required, a personal interview is generally regarded as an appropriate opportunity for students with special questions to meet with an admissions counselor. In studying the secondary school record, the counselor may discover some factor that merits further explanation. In this event, the applicant may be asked to arrange a visit to the Admissions Office. The interview, therefore, may be held at the request of the student

or the counselor. In most cases, contacts with Admissions personnel will be more beneficial if the *University Bulletin* has been carefully studied before the personal interview.

Special Note

Northeastern does not hold Saturday classes for students in the Basic Colleges; hence, guided tours cannot be provided at that time. A weekday visit to the University is recommended. However, special Saturday appointments may be arranged on a limited basis.

General Requirements for Entrance

An applicant for admission to Northeastern University has, ideally, completed a challenging secondary school program—a program that includes courses in English, foreign language, mathematics, laboratory science, and history. Proficiency in a foreign language is especially important for students entering the College of Arts and Sciences. But the overall school record has importance in itself, both as an indication of achievement in subjects critical to university study and as a reflection of a wise choice of electives. Candidates are encouraged to broaden their reading outside of class. The student who can communicate ideas, understand the meaning of words, and write effectively is at a distinct advantage. Most important, the high school transcript should provide clear evidence of sound study habits so vital to success in higher education.

Today's high school students have had the advantage of many innovations that have greatly enriched their experience—independent study, small group seminars, research projects, and off-campus experiences related to community service or future vocations. Northeastern is understandably interested in the growth of the work/study concept in many secondary schools, and the Committee on Admissions looks with favor upon the variety of these worthwhile experiences.

Preparation for Study in Engineering, Science and Mathematics, and Allied Health Professions

It is only natural that evidence of special aptitude and the highest possible level of preparation in the sciences and mathematics should be required for entrance to certain programs of study offered by the University. Such programs include:

College of Arts and Sciences*

Biology, Chemistry, Computer Science, Geology, Mathematics, Physics

Boston-Bouvé College of Human Development Professions*

Physical Education
Physical Therapy
School and Community Health Education
Speech-Language Pathology and Audiology
The Teaching of Secondary Science/Mathematics

College of Engineering

All programs

Lincoln College

B.E.T. Degree program

College of Nursing

B.S. program

College of Pharmacy and Allied Health Professions

All programs

*See p. 194 for additional majors offered by these Colleges.

Courses in science and mathematics vary greatly in terminology, teaching methods, and content. Applicants are encouraged, however, to complete the full sequence of such courses if possible. In science, this would usually include a full academic year of study and laboratory work in biology, chemistry, and physics; and, in mathematics, geometry, algebra 1 and 2, and a fourth year of trigonometry and/or analysis. Experience has shown that students in programs emphasizing mathematics and science need courses in the social sciences and humanities to be fully prepared for professional courses.

Preparation for Study in Business Administration

Candidates for admission must have successfully completed a strong preparatory program in high school, including courses in geometry, algebra 1, and algebra 2. Pragmatically, the College aims to offer men and women the opportunity to become educated to a level of competence in their respective fields, thus enabling them to choose between an immediate professional career or graduate school. While mathematics plays an important role in the total program, strong emphasis is also placed on liberal studies to effect an intellectual balance with liberal and appreciative courses.

Preparation for Study in the Social Sciences, Teaching, and Criminal Justice

Many candidates for admission have enjoyed their greatest success in areas other than mathematics-science. Their interests lie, quite naturally, in the study of the humanities and social sciences. Thus, such a student may choose to apply for admission to one of the following programs:

College of Arts and Sciences Broad and flexible programs are offered to meet a variety of student interests in African-American Studies, Art, Drama, Economics, English, History, Human Services, Journalism, Linguistics, Modern Languages, Music, Philosophy, Political Science, Public Administration, Psychology, Sociology-Anthropology, and Speech Communication. A wide selection of electives enables students to broaden horizons while developing depth in the field of their major.

Boston-Bouvé College of Human Development Professions

Professional courses leading to the opportunity for teacher certification are based upon a strong foundation of liberal arts study in the humanities and social sciences. Elementary Education majors may focus on any one of six areas, including preprofessional Special Education and Early Childhood Education. Secondary Education majors typically choose among English, Modern Languages, Social Studies, and Human Services.

The College also offers a major in Recreation and Leisure Studies with emphases in a variety of areas including Community Recreation, Outdoor Education and Conservation, and Therapeutic Recreation.

College of Criminal Justice By its very nature, the program in Criminal Justice requires a strong base of liberal arts study before professional courses are introduced. Applicants for admission should therefore demonstrate an ability to succeed in their study of the behavioral, social, and human services.

Entrance Examinations (Freshmen)

Research clearly indicates that the best single predictor of college academic success is achievement in secondary school. Thus, this factor, together with the recommendations of the school counselor, weighs most heavily in the evaluation process. Although the Scholastic Aptitude Test and three Achievement Tests of the College Board are required, the Committee on Admissions does recognize that these test results do not measure such qualities as determination, imagination, and leadership.

English composition has to be one of the three required Achievement Tests. Students can choose the other two tests in subjects in which they feel most confident. Students whose native tongue is not English may substitute the Test of English as a Foreign Language (TOEFL) for the English Composition Test. No single schedule of testing is recommended, but applicants are advised not to take subject matter tests unless they are currently studying such subjects.

For full information about College Board Examinations, consult a school guidance counselor or write directly to:

The College Board
P.O. Box 592
Princeton, New Jersey 08540
or
P.O. Box 1025
Berkeley, California 94701

The American College Testing Program may be substituted for the College Board Testing Program. For full information, write to:

American College Testing Program
P.O. Box 168
Iowa City, Iowa 52240

Admissions counselors also will be glad to answer questions about these testing programs.

Advanced Placement

The University grants advanced placement credit to those students with a score of 3 or better in their Advanced Placement Examinations. Such students are excused from the basic courses in Art History, Classics, Modern Languages, English, History, Chemistry, Mathematics, Music, Biology, or Physics and in the advanced courses in languages to which the Examinations apply. They receive full credit for those courses from which they are excused.

Applicants are required to take the Advanced Placement Tests of the College Board in May.

College-Level Examination Program

The University cooperates with the College Board in its CLEP Program. CLEP provides a national program of five General Examinations and forty-seven Subject Examinations to evaluate nontraditional college-level education. Qualified students are encouraged to take the general and/or subject matter examinations of CLEP, so that college credit may be allowed upon entrance. In general, the Committee on Admissions accepts the score range recommendations of the College Board. Northeastern University has been designated a CLEP Testing Center. Inquiries may be addressed to Counseling and Testing Center, Room 302, Ell Student Center.

Applying for Admission and Plans of Admission

Entry Dates

Northeastern University admits students to all programs in September. The University also has a January entrance date for most of its programs. In addition, transfer students may enter in certain programs in the April and June quarters.

The application should be filled out properly, signed, and forwarded to the Dean of Admissions, Northeastern University, Boston, Massachusetts 02115 together with a nonrefundable \$25.00 application fee. Checks should be made payable to Northeastern University. This fee may be waived in cases of extreme hardship as endorsed by the candidate's secondary school counselor or social worker. It is to the students' advantage to submit applications for admission promptly. Students are also responsible for making sure that their transcripts and College Board scores are submitted to the University.

Program Selection

Many students have difficulty in selecting a program of studies. For this reason, the University has introduced flexibility into its programs so that students may explore alternative fields or tailor their programs to personal goals. Freshman candidates have to indicate a choice of college and, in some cases, a major. In the College of Arts and Sciences,* Business Administration, Criminal Justice, Engineering,* Lincoln College, and Pharmacy and Allied Health Professions, students do not have to make a definite choice of major concentration or emphasis until the end of the freshman year and in some programs until the end of the sophomore year. There is also flexibility in choosing a major in the teacher preparation program offered by Boston-Bouvé College of Human Development Professions. In certain programs, a limited number of electives are available for freshman students.

Rolling Admission Plan

Under Northeastern's Rolling Admission Plan, candidates may be notified of their acceptance at a point in their secondary school careers when there is sufficient evidence that they will be able to profit from study at the university level. This may occur early in the senior year or after the results of College Board Examinations have been evaluated. In all cases of acceptance, candidates are to complete successfully the senior year of high school.

Students should note that enrollments are limited in some programs where the number of applications is expected to exceed campus resources.

Deferred Admissions Plan

An increasing number of students seek information about deferring admission, perhaps to travel or to improve their financial resources through employment before entering college. Accepted students who wish to participate in the Deferred Admissions Plan will be asked to describe the activities they plan for the year preceding enrollment. Information on the plan is available from the Admissions Department.

Early Admission—Juniors, Second-Semester Seniors

In certain cases, students may enroll at Northeastern prior to high school graduation. Such students may enroll at Northeastern either in September

**Except Computer Science majors.*

or January, thereby reducing the time to complete degree requirements by one year. A special form provided by the Admissions Committee requires the endorsement of the school principal or guidance counselor for early admission. Write to the Department of Admissions for further details.

Alternative Freshman-Year Program

The Alternative Freshman-Year (AFY) Program was developed in collaboration with University College, a division of Northeastern serving students who seek a flexible course schedule. The program may be ideal for those students who feel that their high school grades do not reflect their true abilities and/or believe that they are not ready to undertake a full college curriculum.

The AFY Program is specifically structured to assist students in making the academic and social adjustments necessary for success in college. Working with a counselor, students follow a prescribed curriculum designed to meet their individual needs and to help them sharpen basic academic skills in writing and mathematics while gaining confidence in their ability to do college-level work. In addition, the program also permits students to sample different areas of study before committing themselves to a specific major.

The full range of counseling services, physical education facilities, dormitory arrangements, and extracurricular programs is generally available to students enrolled in this program.

For further information about the Alternative Freshman-Year Program, see p. 182.

Programs for Minority Group Students

Northeastern University deliberately seeks to expand educational opportunities for deserving minority-group students and to recruit promising students from economically and culturally disadvantaged backgrounds. In so doing, it has increased its guidance and other supporting services in order that such students may be assured the opportunity to succeed in their chosen fields of study. Supporting services include tutorial study and programmed instruction. These and other counseling services are provided by the University's African-American Institute.

Project Ujima Program

"Ujima" is Swahili for "collective work and responsibility." The purpose of Northeastern's Project Ujima is to assist disadvantaged minority-group students in developing their potential to the fullest extent.

The program is designed to help make students aware of their potential and to urge them forward with a sense of direction and purpose. Special programs such as minicourses, counseling seminars, tutorials, and training sessions are provided to meet the needs of these students.

Open Campus Courses

Under Northeastern University's Open Campus Plan, qualified high school students who can gain release from their schools are invited to take full-credit courses at Northeastern while they are still enrolled in secondary school. In this way, students are able to gain a better idea of the collegiate environment while they work toward college credit. For further information, write to the Admissions Department.

Cooperative Freshman-Year Program

College of Engineering Summer Quarter Each June, the College of Engineering enrolls a limited number of qualified students in all programs except Computer Science under a special summer Cooperative Freshman-Year Program.

Students may enter Northeastern University in the June following completion of the senior or junior secondary-school year and complete the first quarter of their college freshman year from June to September.

Graduating high school seniors then continue their freshman academic programs or undertake cooperative work assignments. The first cooperative work assignment normally occurs either in the winter quarter (January to March) or in the spring quarter (April to June). Under special circumstances, and at the discretion of the faculty coordinator, freshmen may be placed in September, following completion of their first academic quarter. After this work assignment, the student will return to Northeastern and complete the freshman year. The exact schedule will be based upon the professional judgment of the Cooperative Education Department and the academic progress of the student.

By extending the freshman year, enrollees have the opportunity to defray a portion of their first-year expenses.

Following the summer term, juniors have the option of returning to their secondary schools with credits earned toward college degrees or staying on at Northeastern, with the permission of their secondary schools, as members of the freshman class. Students who choose to remain at Northeastern then have the opportunity to participate in cooperative work assignments similar to those held by graduating seniors, either in the fall or winter quarter. For additional information, write to the Admissions Department.

Orientation and Registration

The orientation and registration program, which begins with your arrival in September, officially launches your academic career at Northeastern.

The administration, faculty, and many upper-division students have planned several days of programs, faculty seminars, meetings, and special events designed to help you adapt to college life in general and Northeastern University in particular.

In addition to participating in regular registration operations, receiving class schedules, and purchasing books, you will meet with the dean and faculty members of your college, who will provide information concerning your planned academic major, courses, and career goals.

You will have the opportunity to attend "how to study" seminars, peer-counseling sessions, and many other informative events. The Department of Cooperative Education, for example, has planned meetings regarding job opportunities and school-work experiences.

You will be introduced to members of more than 130 student organizations, some of which you might choose to join. Guided tours of Boston's historical and cultural centers will also be available.

Freshman students are assigned to classes based on their choices of college and major, high school records, and a variety of placement tests taken during the orientation and registration program.

Skill and Competency Development

Responding to what is apparently a growing national need to improve basic writing, numerical, and reading/study skills among otherwise academically

acceptable college freshmen, the University extends to freshmen in several of its participating Colleges the opportunity to enhance the likelihood of academic success as freshmen through voluntary enrollment in compensatory (*i.e.*, development) courses.

Selection for such course work is based upon the correlation of competency data derived from specially prepared testing procedures administered during Orientation Week with pre-freshman academic credentials.

The freshman writing sequence, the mathematics sequence, and the reading/study skills course each bear full credit in participating colleges.

Instructors, freshman advisers, and the Freshman Affairs Staff of the Dean of Students' Office are ready to assist involved freshmen in achieving success in their endeavors.

Special Students

A limited number of special students may be admitted to the Basic Colleges. Special students are not degree candidates and must meet criteria set by the college to which they are admitted.

Those admitted as special students usually have completed some college-level work. The following are among the applicants who may be considered:

- a college or university graduate who needs additional course work to prepare or qualify for a graduate program;
- individuals, recommended by deans or program directors, who need particular formal course work to meet professional requirements for certification;
- students who need several courses to complete degree requirements at another college or university, provided they have written approval from the appropriate college dean; others who are recommended by deans of the colleges to take courses leading to regular admission. In such cases, special-student enrollment should be limited to one academic quarter.

All special students will be charged a nonrefundable application fee of \$25. Before obtaining and paying for an application, the potential special student should consult a counselor in the office of the dean of the college offering the course(s) desired. Tuition will be at the quarter-hour rate in effect at the time and must be paid before registration is valid. Special students will be admitted to classes only when there is space available.

All special students must obtain approval from the office of the dean of the Basic College in which they wish to enroll prior to each quarter's registration, but will be required to pay the application fee only once.

International Students

International students are required to complete and file the regular undergraduate application at least six months before registration. They must meet all admission requirements, including the standardized tests administered by the College Board. All academic credentials should be translated into English before being forwarded to the Department of Admissions. After notification of acceptance, students must pay the required deposits and fully complete the University's Declaration and Certification of Finances Form by the date specified on the acceptance certificate before an I-20 Form can be forwarded.

Northeastern University is authorized under Federal law to enroll non-immigrant alien students.

Students may obtain a copy of the *International Student Admissions Booklet* by writing to the Department of Admissions.

English as a Second Language

Before being considered for admission, students whose native language is not English are required to demonstrate English language proficiency. This can be done by obtaining a score of 450 or better on the College Board's Test of English as a Foreign Language (TOEFL) or by successfully completing an approved English language course of study.

After acceptance, students whose native language is not English will be required to complete the placement test administered by the University's English Language Center. The results of this test will be used to assign students to their English courses. Students with minimal English language skills will be assigned to the noncredit Intensive English Course. The level of course work required in English will determine the student's academic schedule.

Admission of Transfer Students

Students wishing to transfer into the Basic Colleges of Northeastern University may request advanced standing as upperclassmen on the basis of acceptable credits earned in an accredited two- or four-year institution or a technical institute.

Basic Requirements

Full details of the University's transfer policy are available in the *Transfer Booklet*. This publication will be mailed to you upon request. The basic requirements follow:

1. Only candidates who present satisfactory college records, appropriate to the course of study they wish to pursue, may be considered for advanced-standing credit.
2. Credit is generally given toward a Northeastern degree for any course reasonably equivalent to a course offered by Northeastern and completed with a passing grade at another institution.
3. Candidates must be in good standing and eligible to continue in the institutions they are currently attending.
4. Evidence of honorable dismissal is required.

Application Procedure

If September entrance is planned, complete an application for admission no later than July 1. In certain programs, enrollment is possible at the beginning of each Northeastern quarter of study. Complete information on entrance dates for transfer students with advance standing is available with the application. All transfer students are required to indicate their choice of major on the application.

Submit a high school transcript. Request that an official transcript from each college attended be sent, including a list of the courses that will be completed prior to the end of the academic year.

NOTE: Transfer students are not required to complete entrance examinations.

Orientation and Registration

All transfer students are required to participate in an orientation and registration program scheduled immediately before the beginning of classes. This one- to three-day program provides transfer students with the oppor-

tunity to meet with their faculty advisers and plan their course schedules. They will also meet with members of the Student Affairs Office and the Cooperative Education Department.

Required Deposits from Freshmen and Transfer Students

If the Committee on Admissions makes a favorable decision on a student's application, the student will be asked to submit a nonrefundable tuition deposit of \$100 by May 1. This deposit serves as an indication of intent to enroll and is applied to the first-quarter tuition account. A dormitory deposit of \$100 is due at the same time for the student who will reside in University housing.

Students applying for entrance dates other than September should read carefully their certificates of acceptance, which will indicate the required deposit dates.

General and Special Health Requirements

All Students

Prior to registration at Northeastern the Lane Health Center's Pre-entrance Physical Form is sent to each student upon acceptance. It is mandatory that each applicant return this completed form which includes the medical history. This examination *requires* a tuberculin test within six months of the registration date. A rubella titre test is also *required* for all students enrolling in any and all health majors. It is also *required* for all students who expect to have hospital affiliations. This test is recommended for all female students. All students whose academic program requires hospital affiliation are required by the hospitals to have proof of having had measles or immunization against measles when they were more than one year of age. Similarly, proof of immunizations against German measles is required unless a satisfactory anti-body titre against German measles is demonstrated. This information must be forwarded to the University physician for review. Proper health clearance is considered a condition of admission.

Except in the most extreme instances, neither physical nor emotional problems are considered a bar to admission. In fact, we actively encourage handicapped students to become part of the University community. With pertinent information, we usually can make the adjustments to college life smoother and supply special aids when needed.

Sound health and physical fitness are especially important for students in Boston-Bouvé College of Human Development Professions and the College of Nursing and are required by their nonuniversity affiliations. Candidates for admission to the College of Nursing are required to receive special health clearance prior to enrollment. A repeat health examination by the Lane Health Center is given in the third year for physical therapy and physical education students in the Boston-Bouvé College of Human Development Professions and before the third and fifth years for students in the College of Nursing.



College Expenses

Students are advised that tuition rates, room-and-board charges, and fees are subject to revision by the Board of Trustees at any time. They should also note that the freshman year consists of three quarters of full-time study. The Cooperative Plan, whereby students may be gainfully employed, does not begin until the sophomore year.

The primary purpose of the Cooperative Plan is to provide invaluable on-the-job training, but it also can help make education possible without the accumulation of a large personal debt. Because of the Plan—and the University's determination to keep basic expenses as low as possible—many deserving students who might not otherwise be able to afford an education have attended Northeastern.

Expenses for the Freshman Year (Three Quarters)

Tuition for the freshman year, for those who enroll in September, is payable in three installments at the beginning of the fall, winter, and spring quarters. For those who enroll in January, payments are due at the beginning of the winter, spring, and summer quarters.

Board-and-room expenses for those living in University-sponsored residence facilities vary slightly according to the dormitory to which a student may be assigned. These costs are computed on the basis of a seven-day-a-week arrangement and are also paid in three installments at the beginning of each quarter.

Total Freshman Expenses

Application Fee	\$ 25.00
Tuition (Engineering, Lincoln College, Business Administration, Computer Science)	4,500.00
Tuition (All other colleges)	4,200.00
Board and Room (if applicable)*	3,270.00†
Student Center Fee	37.50†
Infirmity Fee (if applicable)	75.00†
Health Services Fee	200.00
Laboratory Deposit (if applicable; \$10.00 charge for extra cards)	30.00

The above list excludes personal expenses and expenses for books and supplies.

* This scale is for Speare and Stetson Halls. See Housing section, page 235.

† Payable in three installments at the beginning of each freshman quarter: September 28, 1981, January 4, 1982, and April 5, 1982. For students who enroll in January, the dates would be January 4, 1982; April 5, 1982; and June 28, 1982.

Special Note

Nonrefundable deposits of \$100 for tuition and \$100 for board and room are payable not later than May 1. These deposits are applied to the first-quarter costs. The board-and-room deposit serves to reserve a space in a University dormitory.

Students who enroll in September usually will have a vacation period of thirteen weeks between the freshman and sophomore years. Generally, Northeastern students use this period to earn money toward tuition costs.

Northeastern University is a member of the National Association of College Admissions Counselors, and the University supports and adheres to the admissions and financial aid policies of the Association's "Statement of Principles of Good Practice."

Expenses for Upperclassmen

	Tuition for Nursing, Pharmacy and Allied Health	Tuition for Arts and Sciences, Boston-Bouvé, Criminal Justice	Tuition for Engineering and Computer Science	Tuition for Business Administration
<i>Division A</i>				
September 28, 1981	\$1,975.00	\$1,950.00	\$2,025.00	\$2,000.00
April 5, 1982	1,975.00	1,950.00	2,025.00	2,000.00
<i>Division B</i>				
January 4, 1982	1,975.00	1,950.00	2,025.00	2,000.00
June 28, 1982	1,975.00	1,950.00	2,025.00	2,000.00
<i>Division C*</i>				
September 28, 1981	1,975.00	1,950.00	2,025.00	2,000.00
January 4, 1982	1,975.00	1,950.00	2,025.00	2,000.00
April 5, 1982	1,975.00	1,950.00	2,025.00	2,000.00

*Division C is the term used to denote the classification of students who are temporarily or permanently on a noncooperative academic year. Certain students in the College of Arts and Sciences may select a noncooperative four-year program. In other colleges, this program is temporary, sometimes required of transfer students to phase into the Cooperative Plan.

Required Fees for All Students

Application Fee

A fee of \$25 is required when the application for admission is filed. This fee is nonrefundable.

Accident and Sickness Insurance

The University provides an excellent hospital insurance and student health program. All students will pay a nonrefundable University Health Service fee of \$200 per year. This fee will cover the group Blue Cross-Blue Shield program and the medical services provided to students by the University Health Service.

Student Center Fee

All students in the Basic Colleges on the Huntington Avenue campus are charged a fee of \$12.50 per quarter for the services available in the Student Center building.

Graduation Fee

The University requires a \$25 graduation fee from all candidates for a degree. This fee must be paid before the end of the fifth week of the last scholastic quarter in the senior year. Candidates in the College of Nursing are also required to pay a charge of about \$10 for their graduation pins.

College of Nursing Uniforms

Students in the baccalaureate degree program of the College of Nursing purchase uniforms in the fall quarter of the sophomore year.

College of Pharmacy and Allied Health Professions Uniforms

Students in Respiratory Therapy purchase uniforms in the spring quarter of the freshman year.

Students in Dental Hygiene purchase uniforms in the fall quarter of the freshman year.

Students in Radiologic Technology purchase uniforms in the fall quarter of the freshman year.

Students in the Medical Laboratory Science programs purchase laboratory coats in the spring quarter of the freshman year. Co-op assignments to hospitals usually will require uniform purchase in the spring or summer quarter of the sophomore year.

Other Fees

International Student Fee

There is a one-time fee of \$200.00 charged to new, undergraduate international students, payable upon their acceptance at Northeastern.

Liability Insurance

Freshmen majoring in the Colleges of Nursing (Bachelor Degree Program and Special Program for R.N.s) and Allied Health (Respiratory Therapy), as well as all upperclass students in Nursing, Pharmacy and Allied Health Professions (excluding Health Records), and medical or health-related programs in Boston-Bouv  College of Human Development Professions, are required to carry liability insurance. A fee of \$18.00 is charged per year.

Payment of Tuition

All payments should be made at the Bursar's Office. Checks should be made payable to Northeastern University. Beginning with the second week of any quarter, students are not eligible to attend classes unless their tuition has been paid or specific arrangements have been made with the Bursar for a plan of deferred payment. Deferred payment of tuition entails a fee of \$10.

Late Payment Fee

A fee of \$100 will be assessed for failure to make, or arrange for, payments in accordance with the prescribed regulations.

Laboratory Deposits

Students taking laboratory courses should be prepared to purchase laboratory deposit cards from the Bursar as directed by the department offering the course. These deposits will be charged with deductions for breakage and destruction of apparatus in the laboratory. A charge of \$5 each is made for extra cards.

**Reserve Officers' Training
Corps—Uniform Deposit**

Freshmen enrolling in ROTC make a deposit of \$25 to cover loss of, or damage to, ROTC uniforms and equipment. Any loss or damage exceeding the deposit will be charged to the student.

General

Students in the College of Nursing may expect to be assessed fees for clinical laboratory experiences. *Physical Education* majors pay a room-and-board charge for a resident program at the Warren Center in the spring quarter. *Recreation and Leisure Studies* students pay a fee for a one-week term of camping at the Warren Center. A one-week session in winter sports is optional for Recreation and Leisure Studies majors in their junior or senior year (at a cost of \$175).

Refunds

The University provides all instruction on an academic-quarter basis, for which students pay at the beginning of each quarter. Tuition refunds in all schools and colleges may be granted through the first four weeks of a quarter only when specific conditions are met and on the basis of the date appearing on the official withdrawal application. (Nonattendance does not constitute official withdrawal.) Questions regarding refunds should be discussed with the Dean of Students' Office. When approved, refunds are made as follows:

Tuition Refund

Official Withdrawal Filed Within	Percentage of Tuition Refunded
1st week of Quarter	100
2nd week of Quarter	75
3rd week of Quarter	50
4th week of Quarter	25

Room and Board

Rental charges for rooms in University accommodations are refundable only in cases of withdrawal prior to the start of a quarter (except in special circumstances so adjudged by the University). The \$100.00 deposit is not refundable. Board charges may be refunded for all unused portions when the food identification card is surrendered to the Office of the Dean of Students for Housing.

Overloads

Tuition covers the cost of each student's required courses for a quarter. In addition, a course worth one quarter hour of credit may be taken without added charge. However, any other additional courses will be billed as overloads to the students taking them.

Financial Aid

Charles M. Devlin, M.Ed., *Dean of Student Financial Services*

Financial assistance in the form of loans, grants, and work-study is available on an annual basis to qualified students. Undergraduate financial aid funds are administered in accordance with a nationally established policy and philosophy of financial aid for students pursuing a degree in higher education. It is a basic premise of this policy that parents have an obligation to pay for the education of their children to the extent that they are able to do so. Financial aid is available only for meeting the difference between the students' potential resources, (parents' contribution, summer or co-op earnings, outside agency awards, etc.), and their annual educational costs. The parents' contribution is determined by an objective analysis of the family's financial state: net income, number of dependents, allowable expenses, indebtedness, and assets. Criteria established by the College Scholarship Service are used in making the evaluation.

The University does not award any form of financial assistance to students who are not citizens or permanent residents of the United States.

Application Procedure

Initial Year (Freshman and Transfer Students) Applicants seeking financial assistance for their freshman year are required to submit a copy of the Financial Aid Form (FAF) to the College Scholarship Service by February 15 for summer or fall entrance or by October 15 for winter and spring entrance. The FAF is available from secondary school guidance offices or the Office of Financial Aid.

On the FAF you must indicate that you want copies sent to Northeastern University (3667), The Pell (Basic Educational Opportunity) Grant Program, and your state scholarship program (if applicable).

After the Office of Financial Aid is notified by the Office of Admissions of your acceptance, a status report is sent to you, which indicates the anticipated cost of education, parents' contribution, student's contribution, family contribution, financial need, and your anticipated Pell Grant eligibility.

Awards are made on a first-applied, first-aided basis and are contingent on continued funding. The typical award takes the form of a package combining a grant, a loan, and part-time employment. Awards may be adjusted at any time upon receipt of other funds or changes in status.

Transfer students also are required to file transfer transcript supplements from all previously attended post-secondary schools by April 15 for summer and fall entrance or by October 15 for winter and spring entrance.

Application Procedure

(Sophomore—Senior) Applicants seeking financial assistance are required to submit an FAF form to the College Scholarship Service each year they apply for assistance. Upperclass applicants are also required to submit one "Upperclass Application for Financial Aid" in each of their upperclass years and to file for the Pell Grant and submit the results of that application to the Office of Financial Aid as soon as possible.

Because financial aid awards are usually made for the entire academic year, applications should be filed prior to the following deadlines:

Fall quarter	April 15
Winter quarter	August 15
Spring quarter	November 15
Summer quarter	January 15

See information concerning state scholarships and the Federal Pell Grant.

Eligibility and Selection

In order to be eligible to participate in the financial aid programs at Northeastern University, all students must: a) apply for financial aid, completing the proper application forms and submitting them in a timely fashion; b) ascertain financial need; c) be in attendance at Northeastern University, pursuing a first academic degree on at least a half-time basis in an eligible program; d) be making normal academic progress as determined by the college in which the student is enrolled; e) meet any other eligibility requirements of the individual aid programs.

Northeastern University makes every effort to meet the full apparent need for aid from applicants. Selection of applicants for awards is based on the following criteria: highest need and high academic achievement or potential for academic achievement. Aid is granted on the basis of availability of program funds.

Most students who attend Northeastern University move along with their class. On request, information about retention and attrition can be obtained from the Office of the Dean of Students.

Mail Inquiries to:

Northeastern University
Office of Financial Aid
P.O. Box 75
Boston, Massachusetts 02117

Office Hours

8:30 a.m. to 4:30 p.m., Monday-Friday

Telephone Numbers

General information	617-437-3190
Pell Grant information	617-437-3804
Help/GSL/Parent Loans	617-437-3386
Initial-year information	617-437-3191
Work-study information	617-437-3200

State Scholarship Programs

The Office of Financial Aid strongly advises applicants for aid to apply to state scholarship programs at the same time that they apply for aid from the University.

The Commonwealth of Massachusetts may provide scholarship aid to Massachusetts students pursuing full-time programs of study in an accredited college or university. Awards are made in the summer of each year, and applications for entering freshmen are available through their high school guidance offices. Out-of-state students should investigate aid programs in their respective states. Substantial state aid is offered by Connecticut, New Jersey, Pennsylvania, Rhode Island, Vermont, and Maine.

Federal Programs

Note: All Federal financial aid programs are subject to change, depending upon adequate and continuing Federal support.

Pell Grant (formerly Basic Educational Opportunity Grant)

This is a program of direct federal grants to undergraduate students only. Eligible students can receive as much as \$1,800 per year toward the cost of their education. Pell Grants are generally available to all students who have not previously received a bachelor's degree, who are not in this country on a student visa, and who are attending college on at least a half-time basis (minimum 6 quarter hours). To utilize this program to the fullest, all students applying for financial aid *must* file for a Pell Grant.

Applications for a Pell Grant can be made on the Financial Aid Form (FAF), which is available from local high schools or by calling the Pell Grant unit of the Financial Aid Office at 617-437-3804.

College Work-Study Program

This is a need-based program of part-time employment under the sponsorship of the federal government. It is designed to help full-time students meet their educational expenses. Students generally work parttime while attending classes. Eligible students may work for the University or for public or private non-profit off-campus agencies. The Office of Financial Aid has the responsibility of placing qualified students in their job assignments.

Supplementary Educational Opportunity Grant

Supplementary Grants are direct awards provided by the federal government. They are available to a limited number of full-time undergraduate students who present evidence of needing financial assistance. Eligible students who are accepted for entrance may receive Supplementary Educational Opportunity Grants ranging from \$200 to \$2,000 for each year of their undergraduate education.

Health Professions Loan

This program is available to full-time undergraduate students who have been accepted for a course of study leading to a Bachelor of Science degree in Pharmacy. A student who evidences financial need and academic promise may borrow as much as \$2,500 per academic year. Repayment of principal and interest does not begin until one year after the student ceases to pursue a full-time course of study. Repayment of principal may be extended over a 10-year period with interest at the rate of 7% per annum.

Guaranteed Student Loan Program

Under this program, students who are enrolled for at least one-half the normal academic work load may borrow from a participating bank or other financial institution. Terms and conditions vary from state to state, but the law allows dependent undergraduates to borrow a maximum of \$2,500 per year, up to a total of \$12,500, for undergraduate study. Independent undergraduates may borrow up to \$3,000 per year, with a total limit of \$15,000. The federal government pays the interest while the student is in school. The student must begin repaying the principal of the loan plus interest shortly after the student drops below half-time enrollment.

Applications for the loan itself are available from local banks or the Education Office of your state government. Additional information and necessary application forms for first-time borrowers are available from the Financial Aid Office.

Parent Loans for Undergraduate Students

Under the Parent Loan Program (PLUS), parents of dependent undergraduate students may borrow up to \$3,000 per year for each child enrolled in an approved educational institution. These loans are also offered by banks and other financial institutions, although terms and availability vary from state to state. Unlike the Guaranteed Student Loans, the PLUS loans require parents to begin repayment of the loan (with 9% interest) within 60 days of receiving the loan. Repayment may be stretched out over ten years, as long as the minimum monthly payment of \$30 is maintained. Applications and more information can be obtained from local lending institutions.

National Direct Student Loan

Direct Loans are available to students who present evidence of needing financial assistance. Undergraduate students may borrow up to a maximum \$3,000 for the first two years, or a total of \$6,000 for their entire undergraduate education. Students are allowed a total maximum of \$12,000 through their undergraduate and graduate education. Repayment and interest on Direct Loans are not required until 6 months after a student graduates or withdraws from the institution. Repayment of principal may be extended over a ten-year period, with the interest rate at 4% per annum. Repayment may be deferred up to three years if the student is pursuing at least a half-time course of study or serving in the Peace Corps, VISTA, or the armed forces.

Nursing Student Loan

This program is designed for full-time undergraduate students who have been accepted for a course of study leading to an Associate or Bachelor of Science degree in Nursing. Provided financial need is evident, students may borrow as much as \$1,500 each year up to a maximum amount of \$6,000 for their entire undergraduate education. Repayment and interest on these loans do not begin until nine months after the student ceases to pursue a full-time course of study. The repayment of the principal may be extended over a 10-year period with the interest at the rate of 3% per annum.

Reserve Officers' Training Corps Scholarship Program

(Refer to section on Reserve Officers' Training Corps.)

University Scholarships

The following scholarships are awarded through the Office of Financial Aid. Because we award specific scholarships to the students who qualify, you should not apply for any specific scholarship. If you feel you are a potential recipient for any of these listed awards, you may bring that fact to our attention.

The Vivian B. Allen Scholarships Nursing

The Vivian B. Allen Foundation Endowment for nursing scholarships was established in 1968 through the generosity of the Vivian B. Allen Foundation, Inc. The income from a \$500,000 endowment fund is to be used to provide scholarship assistance for students entering or enrolled in the College of Nursing of Northeastern University. The application procedures and qualifications for selection are the same as those for all other scholarships.

Alumni Scholarships All Colleges

Scholarship aid is available to entering freshmen who are relatives of alumni. Applicants must show evidence of scholastic achievement and financial need.

Irving Aronson Scholarship Engineering

The Irving Aronson Scholarship for Electrical Engineering students was established through the generosity of the family of Irving Aronson as a living memorial to a man who shared his life with many people and who cared so much for the educational process. Income from this fund will be awarded or loaned to electrical engineering students who demonstrate financial need and academic responsibility.

Badger Company, Inc., Grant Program Engineering

The Badger Company, Inc., has made available to Northeastern University two grants of \$1,500 each to be given to first-year students. Recipients must be from secondary schools in the Greater Boston area and have been accepted into the College of Engineering. Summer employment may be available to the grant recipient(s) during the summer before their matriculation at the University. Cooperative work will be offered as long as positions are available during their undergraduate years.

George L. Barnes Scholarship All Colleges

This fund was established in 1969 by Miriam P. Poole, daughter of George L. Barnes, in memory of her father, a distinguished member of the Northeastern University Corporation and Board of Trustees from 1937 until his death in 1965.

The income from this fund will annually provide a full scholarship to a deserving student from Weymouth, Massachusetts. The award is made on the basis of need and character. Some additional assistance may be given in the upperclass years.

The Henry Francis Barrows Scholarships All Colleges

Established in 1949, the four Henry Francis Barrows Scholarships, provided under the will of Fanny B. Reed, are offered to Protestant young men born and brought up in New England. Good scholastic standing, good character, and need must be demonstrated by recipients of the scholarships.

The Barry Scholarship Engineering

The Barry Scholarship, established in 1973 by the Barry Division of Barry Wright Corporation, is available to students in the College of Engineering. Preference will be given to mechanical engineering majors and sons and daughters of Barry employees, based upon demonstrable financial need and academic achievement.

**The Mr. and Mrs. Emil
Matthew Bauer Fund**
All Colleges

The interest from the Fund, established in 1954, is used for scholarships or other financial assistance to students of German birth or of German extraction studying at Northeastern University. The scholarships are available to either men or women students enrolled in any year at the University.

**Martin Brown Scholarship
Fund** Engineering

This scholarship was established in 1961 by Mr. Martin Brown, an engineering alumnus of the Class of 1921. Its purpose is to assist qualified students enrolled in the College of Engineering who have need and have demonstrated above-average scholastic ability.

**Burroughs Corporation
Scholarship Program**
All Colleges

Two awards of \$1,000 are made each year to assist talented students in their junior, senior, or graduate years of study whose goals are related to a career in the data processing industry.

The Burroughs Corporation Scholar will be provided the opportunity to work in the summer internship program. This job provides not just additional funds for educational purposes, but also a work experience directly related to the student's career objectives.

Wellington Burnham Fund
All Colleges

This fund provides financial assistance to worthy students of limited means without discrimination as to race, creed, color, or scholastic attainment. It was established in 1961 under the provisions of the will of George A. Burnham.

**The Godfrey L. Cabot Scholarship
Fund** All Colleges

This fund was established by Dr. Cabot in 1954 to help meet the college expenses of employees or children of employees of Godfrey L. Cabot, Inc., and its subsidiary and associated companies. To be eligible, the employee must have completed at least five years of service with the company prior to the time the student enters the University. The University shall determine the number and amount of these scholarships, which are not limited to outstanding students and which are available to evening as well as day students. Students interested in applying for scholarship aid from this fund should communicate with the Cabot Personnel Office or the Office of Financial Aid at Northeastern University.

**The Camp, Dresser and McKee
Scholarship** All Colleges

This Scholarship was established in 1973 by Camp, Dresser and McKee, Inc., and is available to students in all colleges. Preference for awards will be based upon demonstrable financial need and academic achievement.

**Louis S. Cashman Memorial
Scholarship Fund**
Business Administration

This Fund was established by the Massachusetts Credit Union Association (CUNA) and friends of Mr. Cashman in recognition of his outstanding service to the credit union movement in the Commonwealth of Massachusetts.

This scholarship is awarded annually to students in the College of Business Administration who have need, with particular preference given to those enrolled in Banking and Finance.

**The Gardner A. Caverly
Scholarship** All Colleges

This scholarship was established in 1957 through the generosity of Mr. Gardner A. Caverly, an alumnus of the College of Business Administration and a member of the

Class of 1934. Its purpose is to provide financial assistance and encourage qualified students from the New England area to attend Northeastern University. In selecting worthy students for these scholarship awards, preference is given to graduates of the Rutland, Vermont, and Laconia, New Hampshire, high schools.

Carl W. Christiansen Scholarship
Business Administration

The Carl W. Christiansen Scholarship Fund was established in 1976 by Mr. Carl W. Christiansen, a graduate of the School of Commerce and Finance, Providence Division of Northeastern University, Class of 1923. Early in his career, Mr. Christiansen was an accounting instructor and associate dean in the Providence Division. In 1927, the accounting firm of Christiansen, Murphy and Company was founded, which in 1940 became known as Christiansen and Company-Certified Public Accountants. The income from this fund is to be awarded annually to an entering freshman in the day College of Business Administration who has demonstrated the necessity for financial aid. Preference will be given to students from the state of Rhode Island who are interested in pursuing a career in accounting.

Ruby H. Cole Scholarship
Fund All Colleges

The Ruby H. Cole Scholarship Fund was established in 1973 under the will of Mrs. Cole, late of Boston, Massachusetts. The income from the Fund is awarded annually to one or more female students enrolled in or admitted to undergraduate programs of the Basic Colleges of the University and who are graduates of Roxbury High School, Roxbury, Massachusetts. Recipients must demonstrate financial need, academic stability, and soundness of character.

Community Scholarships
All Colleges

The Community Scholarships were established by President Asa S. Knowles during the period 1963-1973. These scholarships stipulate that Northeastern will ensure that full freshman tuition be met in the form of scholarships and grants for qualified students.

In order to qualify for consideration, a student must apply for financial assistance through the normal application procedure and demonstrate need.

The following Massachusetts communities are designated under this scholarship program:

Boston: three scholarships at each of the several high schools; **Ashland:** three scholarships; **Burlington:** three scholarships; **Weston:** three scholarships; **Frammingham:** two scholarships; **Weymouth:** two scholarships; **Haverhill:** two scholarships; **Revere:** two scholarships; **Norwood:** two scholarships; and **Brookline:** three scholarships.

The Compugraphic Corporation
Scholarship Fund All Colleges

The Compugraphic Corporation Scholarship Fund has been established and endowed at the University with a generous gift from an individual. The income from the scholarship fund is to be used annually as financial assistance for persons who are admitted to or enrolled in full-time undergraduate programs of the Basic Colleges of the University and who demonstrate financial need, academic stability, and soundness of character. Scholarships are tuition grants and are awarded to persons who are otherwise eligible and who are, at the time of the grant, children of current employees of Compugraphic Corporation.

Richard Cardinal Cushing
Scholarship All Colleges

The Richard Cardinal Cushing Scholarship was established in 1978 through the generosity of the Massachusetts Committee of Catholics, Protestants, and Jews. The income from the scholarship's endowment will be awarded annually to a Catholic, a Protestant, and a Jewish student who embody the principles of brotherhood and justice and who, through their work on campus, have become positive forces for religious understanding.

**Minette Cracknell
Memorial Scholarship**
Nurse Practitioner

The Minette Cracknell Memorial Scholarship Fund was established in 1979 through the generosity of family, friends, and colleagues of Mrs. Cracknell, a 1969 graduate of Northeastern's Nurse Practitioner Program. She was, in every sense, a pioneer in the nurse practitioner movement. The income from this fund is awarded annually to a nurse practitioner student who exemplifies the standards of excellence, selfless qualities, and high ideals characteristic of Mrs. Cracknell.

**The Salvatore J. and
Corinne Danca Scholarship**
All Colleges

The Salvatore J. and Corinne Danca Scholarship, established in 1974 by Salvatore J. Danca, a graduate of Northeastern University, Class of 1934, is to be awarded annually to a student enrolled as a sophomore. Selection will be made by the Committee on Scholarships, using academic excellence and financial need as the criteria for selection.

**Elizabeth A. Davey Scholarship
for Physical Therapy**
Boston-Bouv  College of
Human Development Professions

The Elizabeth A. Davey Scholarship for Physical Therapy students was established through the generosity of the family and friends at Choate Memorial Hospital on behalf of Elizabeth A. Davey, as a living memorial to a woman who shared her life with so many people. Income from this fund will be awarded or loaned to a Physical Therapy senior who demonstrates superior academic achievement and financial need.

**Charles M. Devlin
Scholarship** All Colleges

This fund was established in 1976 by the members of the Class of 1970 "in honor of our dedicated adviser," Charles M. Devlin. The income from the fund will be awarded annually to upperclassmen with proven ability and demonstrable financial need. Preference will be given to children of members of the Class of 1970.

**The William O. DiPietro
Scholarship** Engineering

This scholarship was established in 1967 through the generosity of Mr. William O. DiPietro, a distinguished alumnus of the College of Engineering and a member of the Class of 1942. The scholarship is awarded annually to one or more deserving freshmen who demonstrate a high caliber of achievement and a desire to fulfill the limits of their ability in both academic and cooperative periods of study. In considering recipients for this scholarship, preference is given to freshmen enrolled in the College of Engineering who have a desire to major in Chemical Engineering. It is intended that those students receiving awards from this scholarship might someday contribute to this or other scholarships themselves, thereby perpetuating growing funds that will help other deserving individuals.

**The Diamond Anniversary
Development Program
Scholarship** All Colleges

This scholarship has been established to commemorate the successful conclusion of the Diamond Anniversary Development Program. This scholarship fund recognizes the loyalty and generosity of the thousands of alumni and friends, corporations, foundations, and organizations whose significant contributions of time and resources have brought Northeastern University to "that greatness which is its destiny."

Three \$1,000 scholarships are awarded annually, as follows: to one or more full-time students enrolled in a cooperative education program within a basic college of the University, to one or more part-time students enrolled in a basic college of the University, and to one or more full-time students enrolled in the graduate division or a professional school of the University. Consideration will be based upon financial need, academic stability, and soundness of character.

**The Harry Doehla Memorial
Scholarship** All Colleges

The Harry Doehla Memorial Scholarship was established in 1974 in memory of Mr. Harry Doehla, founder and president of Doehla Greeting Cards, Inc. During his lifetime Mr. Doehla provided much financial assistance to young people of limited means to help them in furthering their educational goals.

The awards from this fund are available to undergraduate day students, with preference being given to graduates of Fitchburg High School, Fitchburg, Massachusetts; and Nashua High School, Nashua, New Hampshire. Additional consideration will be given to children of employees of Doehla Greeting Cards, Inc.

**The Cpl. James B. Downey USMC
Scholarship Fund** All Colleges

This scholarship was established in 1970 through the generosity of Mr. William J. Downey, a graduate of the College of Liberal Arts, Class of 1952, in memory of his brother, Cpl. James B. Downey, USMC. The scholarship is to be awarded annually to an upperclassman in the day colleges who has demonstrated the necessity for financial aid.

**Agnes F. Driscoll Scholarship
Fund** All Colleges

This fund will provide scholarship assistance to students in their upperclass years who have demonstrated financial need and scholastic attainment.

**Carl Stephens Eli Alumni
Scholarships** All Colleges

To honor Dr. Carl Stephens Eli, the second president of Northeastern University, the Alumni Association established these scholarships in 1958. Either freshmen or upperclassmen enrolled at the University are eligible. Awards will be made to worthy students on the basis of scholastic ability and need. The scholarships are to be distributed as equitably as possible among students in the Basic Colleges and University College. Preference shall be given to sons and daughters of Northeastern Alumni.

**Elmer H. and Daisy M. Everett
Memorial Scholarship**
All Colleges

This scholarship was established through a bequest of Elmer H. and Daisy M. Everett, both alumni of Northeastern University. Mr. Everett graduated from the College of Engineering, and Mrs. Everett graduated from the School of Business. They are both members of the Class of 1934. Mr. and Mrs. Everett had a strong commitment to help young people wanting to further their education. The fund will be administered by the Office of Financial Aid.

**The George Raymond Fennell
Memorial Scholarships**
Business Administration

Two full-tuition scholarships are awarded each year to first-year students enrolled in the College of Business Administration. The scholarships are awarded in memory of George Raymond Fennell, formerly Assistant Director of Admissions and Director of the Northeastern Student Union.

**Alfred J. and Laura M. Ferretti
Scholarship** Engineering

This scholarship was established in 1978 by Professor Alfred J. Ferretti, who retired in 1961 after forty-three years of service to Northeastern University. It honors the memory of Mrs. Ferretti and is to benefit worthy undergraduate students who are majoring in Mechanical Engineering. Recipients should demonstrate high academic achievement by maintaining a minimum average of 3.0 and should be of sound character.

**Clara and Joseph F. Ford
Scholarship Fund** All Colleges

A fund established by Clara and Joseph F. Ford to provide tuition scholarships for worthy, needy, and well-qualified students who have demonstrated a democratic and tolerant spirit and who are well disposed toward people of all creeds and races.

**The Gamma Phi Kappa Fraternity
Award Fund** All Colleges

The Gamma Phi Kappa Fraternity Award Fund, established in 1972 by the Brotherhood and Alumni of Gamma Phi Kappa Fraternity, is awarded to an entering freshman or undergraduate student in any of the Basic College day programs at Northeastern University. Preference for these awards will be based upon demonstrable financial need. Brothers of Gamma Phi Kappa Fraternity are not eligible for this award.

**The Nathan Gerber
Memorial Scholarship**
All Colleges

The Nathan Gerber Memorial Scholarship was established in 1974 by Albert Gerber, E52, and Robert Gerber, E60, in memory of their father, Nathan, a member of the Class of 1925. The scholarship is to be awarded annually to a student or students enrolled in the freshman class with a demonstrable financial need. Selection is made by the Committee on Scholarships.

The Foster Grant Scholarship
All Colleges

This scholarship, established in 1974 by the Foster Grant Co., Inc., of Leominster, Massachusetts, is available to students in any of the full-time undergraduate colleges. Preference will be given to children of employees of Foster Grant Co., Inc. Basis for the award will be demonstrable financial need and above-average academic achievement.

**Clifton W. Gregg Memorial
Scholarship** All Colleges

This scholarship was established through a bequest of Clifton W. Gregg, a 1915 graduate of the School of Commerce and Finance of Northeastern University. It was Mr. Gregg's request that "the income from this fund be used for the assistance of financially needy students." The award may be made annually. Recipients will be determined by the Committee on Scholarships.

**Rabbi Myer O. Grunberg
Scholarship** All Colleges

Established in 1953 by Mrs. Myer O. and Miss Rose Grunberg, this annual award is available to a senior student in any college of the University. The award is made to students who have evidenced in personal, business, and student relations those characteristics of leadership and human relations that make for a better social order. There is no restriction as to race, creed, color, or sex.

Charles W. Havice Scholarship
All Colleges

This scholarship was established by the members of the Student Union upon the retirement of the former Dean of Chapel, Charles W. Havice. The income from the fund is awarded annually to upperclass students who are active in the Student Union. Students should demonstrate a financial need.

**Charles Hayden Memorial
Scholarships** All Colleges

The Charles Hayden Foundation, created by the will of the late Charles Hayden, an alumnus of the Boston English High School, offers annual memorial scholarships to freshmen at Northeastern University. The scholarships are awarded to "deserving boys" whose parents are unable to finance the entire cost of their education.

**Richard Melvin Horwitz
Memorial Award for Excellence
in Electrical Engineering**
Engineering

The Richard Melvin Horwitz Memorial Award for Excellence in Electrical Engineering was established in 1967 by Leonard J. Horwitz in memory of his brother, Richard Melvin Horwitz, a member of the Class of 1945 in the College of Engineering who died in action during World War II. The award recognizes academic achievement and excellence and is presented annually to an outstanding undergraduate senior majoring in Electrical Engineering.

**The Walter F. Howe
Memorial Scholarship**
Business Administration

This fund was established in memory of Walter F. Howe, Class of 1968, who, within one week after graduation, was fatally wounded while pursuing thieves who had stolen his landlord's car. The scholarship was established through the generosity of Walter's friends and relatives in memory of his ideals of good citizenship and civic responsibility. It is awarded annually to a student in the College of Business Administration who demonstrates not only financial need but good citizenship and civic responsibility. The scholarship is open-ended so that additional sums can be added to it in future years and will be awarded by the University without restrictions as to race, color, geographic origin, or scholastic attainment.

**The Edward L. Hurtig
Scholarships** All Colleges

This scholarship was established in 1968 through the generosity of the Hurtig family in memory of Edward L. Hurtig, an alumnus of the College of Engineering, Class of 1946. The scholarship is awarded annually to an entering freshman in the day colleges who has demonstrated the necessity for financial aid. Preferences will be given to recipients of the Supplemental Educational Opportunity Grants Scholarship Program of the United States Office of Education.

**The Maurice A. and Nellie L.
Idelson Award** All Colleges

This award, established in 1968, is given annually to an entering freshman in the day colleges who has demonstrated the need for financial aid. Preference will be given to graduates of the Boston English High School. Should there be no qualified candidate from this source, the award will then be given to any worthy student.

**Joseph Anthony Johnson
Scholarships** Engineering

Established in 1968 by the will of the late Joseph Anthony (Johansen) Johnson of the Class of 1928, the income provides scholarship aid for students enrolled in the Department of Mechanical Engineering, with preference given to students of Scandinavian origin.

**Dr. LeRoy C. Keagle Memorial
Scholarship Fund** Pharmacy

The Dr. LeRoy C. Keagle Memorial Scholarship Fund was established in 1975 through the generosity of family and friends of Dr. LeRoy C. Keagle, a man of high integrity and commitment to the profession of pharmacy who, at the time of his death on December 15, 1974, was Dean of the College of Pharmacy and Allied Health Professions at Northeastern University. The income from this scholarship fund is awarded annually to a student in the undergraduate Pharmacy Program who is entering the junior or senior class. Recipients must demonstrate financial need, academic stability, and soundness of character.

**Robert G. Keene Memorial
Scholarship Fund**
All Colleges

This fund was established in 1979 in memory of Robert G. Keene, a graduate of Lincoln College, Class of 1972. The endowment funds were provided by the friends

and associates of Robert G. Keene and by the Polaroid Corporation, where he served as an Engineering Manager. The income from the fund will be awarded annually to an undergraduate student who demonstrates financial need as well as strong character and initiative. Primary consideration will be given to children of Polaroid employees.

**The Martin Luther King, Jr.,
Scholarship**

The Martin Luther King, Jr., Scholarship is granted annually to incoming freshman, graduate, and transfer minority students who have demonstrated the philosophy of peaceful coexistence and change through nonviolent means espoused by Dr. King and who have an above-average scholastic record. The scholarship, in the amount of \$500, requires a minimum grade point average. Financial aid based on need is available to supplement the scholarship.

**Vena Morse Lamson
Scholarships** All Colleges

These scholarships are provided through the income of a fund established in 1963 by Horatio W. Lamson in memory of his beloved wife. They are awarded annually to needy and worthy students who are enrolled in any of the Basic Colleges of the University. The scholarships are granted by the Committee on Financial Aid of the University without regard to national origin, sex, race, or creed.

**George M. and Irene M. Lane
Scholarship Fund**
All Colleges

This scholarship fund was established in 1979 by the family of Dr. George M. Lane to honor his memory. Dr. Lane's faithful and dedicated service to Northeastern University extended from 1943 to 1975, at which time he retired as Director of University Health Services. The income from the George M. and Irene M. Lane Scholarship Fund is awarded annually to an upperclass member of the University's varsity football or hockey team who demonstrates financial need, academic stability, and soundness of character. Additional family gifts as well as contributions from friends and associates may be added to the scholarship's endowment.

**The Irving Landfield
Scholarship** All Colleges

This fund was established in 1972 through the generosity of Irving Landfield, a graduate of the School of Commerce and Finance of Northeastern University, Class of 1923. The income from the fund is to be awarded annually to help deserving and needy students who demonstrate a desire to fulfill the limits of their ability in academic and cooperative periods of study. The income from this fund will be administered and awarded by the University without restriction to race, color, creed, geographic origin, or scholastic attainment. It is Mr. Landfield's desire that recipients of the scholarship assume a moral obligation to contribute to the principal of this fund as they may be able, in order to make additional financial aid available for other students in later years.

**Avrom Aaron Leve Memorial
Scholarship** Psychology

This scholarship fund was established in 1957 in memory of Dr. Avrom Aaron Leve, former Assistant Professor of Psychology. The interest is used annually to provide scholarships for upperclass students majoring in Psychology. The award is made on the basis of academic achievement, financial need, and character.

**William F. Linskey
Scholarship Fund**
All Colleges

This fund was established in March 1980 by alumni and friends of William F. Linskey, an athletic trainer long associated with young athletes in and around the Greater Boston area. A former head trainer for the Northeastern University football team and head hockey coach during the 1942-'43 season, Linskey has served the City of Cambridge School Department as head athletic trainer and physical therapist for

more than thirty years. The income from the fund will be awarded to worthy students pursuing courses leading to a Bachelor of Science in Education with a specialization in athletic training.

**Russell T. Lowe Memorial
Scholarship Fund**
College of Engineering

This fund was established in 1976 in memory of Russell T. Lowe, a graduate of the College of Engineering, Class of 1953. The endowment funds were provided by the friends and associates of Russell Lowe and by the Barry Wright Corporation, where he served as a member of the Board of Directors and as president of the Industrial and Aero Products Group. The income from the fund will be awarded annually to one or more upperclass students enrolled in the College of Engineering. Preference will be given to Mechanical Engineering majors based upon demonstrable financial need and above-average scholastic achievement.

**Gilbert G. MacDonald
Scholarship** All Colleges

This scholarship was established in 1981 by the family of Gilbert G. MacDonald, former Vice President for Student Affairs and Dean of Students, and the members of the Student Union. The income from the fund will be awarded annually to upperclass students of proven ability and demonstrable financial need. Preference will be given to students who actively participate in the Student Union.

**Dr. Reuben J. Margolin
Memorial Scholarship Fund**
Boston Bouvé College of
Human Development Professions

The Dr. Reuben J. Margolin Memorial Scholarship Fund was established in 1973 through the generosity of family and friends of Dr. Reuben J. Margolin, an outstanding and dedicated individual and friend who, at the time of his death on April 6, 1972, was Chairman of the Department of Rehabilitation and Special Education at Northeastern University.

The income from the Dr. Reuben J. Margolin Memorial Scholarship Fund is awarded annually to a deserving student admitted to or enrolled in the Graduate School of Boston Bouvé College of Human Development Professions and majoring in Rehabilitation and/or Special Education. Recipients must demonstrate financial need as well as the personal and professional qualities exemplified by Dr. Margolin.

**James G. Martin Memorial
Scholarship** Nursing

The James G. Martin Memorial Scholarship was established in 1978 to financially assist deserving upperclass students enrolled in the College of Nursing. Five scholarships of \$750 each will be awarded annually to deserving students who demonstrate financial need and academic stability.

**George T. Marvin
Scholarship Fund**
All Colleges

This fund was established in 1961 under the provisions of the will of George T. Marvin, a graduate of the Northeastern University School of Law, Class of 1918. Mr. Marvin designated that the income of this fund should be used to provide financial assistance to worthy and needy students to assist them in furthering their education at Northeastern University.

George T. Marvin Scholarships may be awarded to new students seeking admission to Northeastern and to students enrolled as freshmen and upperclassmen. Applicants must have satisfactory records of scholarship as of the time of making application and must demonstrate genuine need and good citizenship.

**Merchants Tire Company
Scholarship Fund**
Business Administration

This scholarship was established in 1972 by Merchants Tire Company in honor of Max Katz, a Class of 1917 alumnus of Northeastern and founder and chairman of

the board of Merchants Tire Company. The scholarship is awarded annually with selection preference given to a son or a daughter of a current employee of Merchants Tire Company enrolled as a freshman within the College of Business Administration, who demonstrates financial need, soundness of character, and academic stability.

**George H. Meserve, Jr.,
Scholarship Fund**

College of Arts and Sciences

This scholarship was established in 1979 through the generosity of Robert W. Meserve in honor of his brother, Professor George H. Meserve, an alumnus of the Class of 1925. Professor Meserve served Northeastern faithfully and with distinction for forty-two years, retiring in 1968 as Professor and Chairman of the Department of Art. Announced at the ceremony dedicating George H. Meserve Hall on the Boston campus, this scholarship benefits worthy undergraduate students who are majoring in Art. Recipients should demonstrate financial need, academic stability, and soundness of character.

**The Clyde W. Morrison
Scholarship Fund** All Colleges

The Clyde W. Morrison Scholarship was established in 1974 by Clyde W. Morrison, a member of the class of 1942. The scholarship is to be awarded annually to a Braintree resident enrolled as a freshman, with a demonstrable financial need. Selection is made by the Committee on Scholarships.

**Frederick W. Muckenhoupt
Scholarship** All Colleges

This award was established in 1961 by Dr. and Mrs. Carl F. Muckenhoupt in memory of their son, Frederick W. Muckenhoupt, Class of 1959 of the College of Engineering.

The award is to be made annually to a student in good standing, on the basis of need. Preference is given to a student enrolled in the Department of Electrical Engineering.

Elizabeth A. Neilson Scholarship

Boston-Bouvé College of
Human Development Professions

The Elizabeth A. Neilson Scholarship Fund was established in 1976 in memory of William H. and Anastasia Neilson, exemplars of the profession of health education during their lifetimes. The income from the scholarship fund is awarded annually to a student(s) with the highest scholastic record majoring in Health Education, who has completed eight quarters of academic study with at least four quarters having been taken at Boston-Bouvé College of Human Development Professions. The student(s) must typify the philosophy of the health education profession.

**Thomas Anthony Pappas
Scholarship Fund** All Colleges

This fund was established in 1980 by the Thomas Anthony Pappas Charitable Foundation. Endowment income is to be used to provide scholarship assistance to needy students with high scholastic records.

**Power Systems Engineering
Grants-in-Aid**

Electrical Engineering

A number of public utilities and power equipment manufacturing companies in the northeastern part of the United States have made available grants-in-aid ranging from \$1,000 to \$1,800 to assist able freshmen who are planning to undertake the six-year integrated cooperative program in power systems engineering leading to the degrees of Bachelor of Science and Master of Science in Electrical Engineering. These awards are made on the basis of academic achievement in high school and aptitude for, and interest in, the field of power systems engineering, without regard to financial need.

Candidates for such grants-in-aid should apply to the Dean of Admissions at Northeastern University not later than March 1 of the year in which they wish to enter the College of Engineering.

**Lawrence Harlow Pratt
Athletic Scholarship Fund**
All Colleges

This fund was established in 1979 by the Northeastern University Varsity Club in conjunction with the Athletic Development Program Fund Drive to honor and recognize Lawrence Harlow Pratt. For more than four decades, Larry was the spirit of Northeastern athletics. His greatest joys were the young men he persuaded to attend college. He encouraged them, cajoled them, sometimes scolded them, but always inspired them to complete their intercollegiate careers and go on to become outstanding members of the community. The income from the fund will be awarded annually to financially deserving varsity athlete(s).

**The Gay Miller Reese
Memorial Scholarship**
Boston-Bouvé College of
Human Development Professions

The Gay Miller Reese Memorial Scholarship was established in 1971 by Everett Reese, in memory of his wife, and by members of the Class of 1921 at their 50th reunion in honor of their classmate and class president, Gay Miller Reese. This scholarship is to be awarded annually to help a well-qualified upperclassman in Boston-Bouvé College of Human Development Professions acquire the education that could not otherwise be possible. The recipient of this award will be selected by the Committee on Scholarships.

Regional Scholarships
All Colleges

Secondary school students who reside in rural areas of New England, who have demonstrated superior achievement in their studies, and who are strongly endorsed by their principals and guidance counselors may qualify for a Regional Scholarship. Scholarships range from \$200-\$1,400.

The Myer Riesman Scholarship
Nursing

This fund, established in 1969 in memory of Myer Riesman, is used to provide financial assistance to deserving students in the College of Nursing. Preference is given to those students whose clinical experience is at Beth Israel Hospital.

**Edward T. Rigney
Scholarship** All Colleges

A fund was established in 1978 by a grant from the Trans-Sonics Foundation in memory of Edward T. Rigney, member of the Class of 1941 and co-founder of Trans-Sonics, Inc. Income is awarded annually to a student showing financial need and promise of success in his/her chosen field and who is enrolled in engineering, science, or science-related studies. The scholarship may be granted to a freshman or upperclassman and may be renewed in succeeding years.

**Frank B. Sanborn
Scholarship Fund** Engineering

The Frank B. Sanborn Scholarship Fund was established in 1958 to provide a scholarship or scholarships of not more than \$500 to worthy and needy students selected by the University, without restrictions as to race, creed, or geographic origin, but with preference being given to students majoring in Electrical, Mechanical, Civil, or Industrial Engineering, in the order stated.

Recipients must be willing to assume a moral obligation to reimburse the fund as they may be able, to make similar financial aid available for other students in later years. There shall be no interest charged and no time specified for reimbursement.

**The Sidney L. Sholley
Memorial Scholarship**
All Colleges

The Sidney L. Sholley Memorial Scholarship has been established in memory of the founder and first president of Keystone Custodian Funds, Inc. Each year the trustees of the Sholley Foundation, Inc., provide a scholarship of \$3,500 to be awarded by the University to an outstanding incoming freshman student. The recipient is known as the Sidney L. Sholley Scholar.

Clinton H. Scovell Scholarships

Boston-Bouvé College of
Human Development Professions

Scholarships are made available annually to men and women students in Boston-Bouvé College of Human Development Professions through a fund provided by the will of Clinton H. Scovell.

**William Lincoln Smith
Scholarship Fund**

Electrical Engineering

The fund was established in 1947 by Farnham Wheeler Smith, Class of 1924; Benjamin Lincoln Smith, Class of 1923; Thomas Hollis, Jr., Class of 1941; and other members of the family in honor of Dr. William Lincoln Smith, who served long, faithfully, and with distinction as Chairman of the Department of Electrical Engineering at Northeastern University.

The income from the fund is used for an annual scholarship award to a student enrolled in the Department of Electrical Engineering who has demonstrated excellence in some aspect of electrical research and stands high in courses or otherwise exhibits promise of future competence in the field. The award shall preferably be granted to a student who needs financial assistance to continue college work.

**George A. and Lorraine C.
Snell Scholarship**

All Colleges

This fund was established in 1973 by Mr. George A. Snell, a graduate of the College of Engineering, Class of 1941, and a member of the Northeastern University Corporation and Board of Trustees, and his wife, Lorraine C. Snell.

The income from the fund is to be awarded annually to one or more students enrolled in the basic colleges of Northeastern University. Selection will be made by the Committee on Scholarships based upon those candidates who demonstrate financial need, academic stability, and soundness of character.

**John Stuart Sousa, Jr.,
Memorial Scholarship Fund**

Pharmacy

This scholarship was established in 1968 in memory of John S. Sousa, Jr., of Fall River, Massachusetts, a student in the College of Pharmacy, Class of 1969, by his family and friends. The scholarship is awarded annually with selection preference given to a male student entering his senior year in the College of Pharmacy and Allied Health Professions who has obtained a cumulative quality point average of 2.300, demonstrates financial need, participates in extracurricular activities, and is preferably a member of a fraternity.

**Southeastern Massachusetts
Pharmaceutical Association
Scholarship Fund**

Pharmacy
and Allied Health Professions

This scholarship was established in 1980 by the Southeastern Massachusetts Pharmaceutical Association. The income from the fund is awarded annually to one or more middle, junior, or senior students enrolled in the College of Pharmacy and Allied Health Professions who are residents of the area covered by the Southeastern Massachusetts Pharmaceutical Association (Greater Fall River, Greater New Bedford, and the Cape Code areas). Recipients must be Pharmacy majors and must demonstrate financial need, academic stability, and soundness of character.

**Lillian M. Spelman
Memorial Scholarship**

Nursing

This scholarship was established in 1979 by a bequest from Lillian M. Spelman, a resident of Boston who, as a public health nurse, dedicated her life to helping others. Her career began in the West End of Boston in the early 1900s. She served her country unselfishly as a Red Cross nurse in Europe during the First World War. Through this scholarship she continues to help others. Scholarship recipients must exhibit financial need as well as academic stability and soundness of character.

Spofford Scholarship Fund

All Colleges

The Spofford Scholarship is awarded annually to an American Negro, American Indian, or multiracial freshman who demonstrates severe financial need.

**The Stop & Shop
Companies, Inc.,**

Student Loan Fund All Colleges

Established in 1974 by The Stop & Shop Companies, Inc., the Student Loan Fund is a combination endowment and revolving fund to be funded by \$100,000. This generous gift recognizes the contribution, in human terms, made through the years by Northeastern to Stop & Shop, which at the time the Loan Fund was established counted more than 120 Northeastern men and women in its executive ranks, seven of them vice presidents.

The Loan Fund will assist students who have a substantial investment in their education but are in need of some financial stimulus to aid them in completing their work.

**The Dr. Ruth E. Sullivan
Memorial Scholarship Fund**

Arts and Sciences

This fund was established at Northeastern University in 1976 through the generosity of family, friends, and colleagues of Dr. Sullivan, who was a member of the Department of English from 1968 until her death in 1976. One scholarship is awarded annually to an undergraduate senior who demonstrates academic achievement and excellence in interdisciplinary studies in the liberal arts, such as literature and psychology, the fields to which Dr. Sullivan contributed so significantly.

**Student Loan Fund—
Health Professions**

Boston-Bouvé College of
Human Development Professions,
Nursing, and Pharmacy and
Allied Health Professions

In 1974, a foundation established a perpetual loan fund at Northeastern University to benefit full-time students enrolled as middlers, juniors, and seniors in Boston-Bouvé College of Human Development Professions, the College of Nursing, and the College of Pharmacy and Allied Health Professions. This loan fund will aid those students who have a substantial investment in and commitment to the health professions and who require some financial help to complete their preparation.

**Ruth Page Sweet
Scholarship Fund**

Boston-Bouvé College of
Human Development Professions

This fund was established in 1959 by members of the Class of 1919 and alumnae of the Bouvé-Boston School in honor of their classmate, Miss Ruth Page Sweet, Dean of Women in the School from 1929 to 1946, Administrative Director from 1946 to 1948, and Director from 1948 to 1958. The scholarship is presented to a junior or senior who has demonstrated a high level of professional promise indicated by academic record and extracurricular activities.

**A. Gilbert Tenney
Scholarship Fund**

Engineering

This fund is in memory of A. Gilbert Tenney, who served as a captain in the Air Force during the Korean War and was killed while in active service. The income from the fund will be awarded to a needy student or students in the field of electrical engineering studying under the Cooperative Plan of Education.

**The Earl H. Thomson
Memorial Scholarship**

All Colleges

This fund was established in 1971 to honor the memory of Earl H. Thomson, a distinguished alumnus of the Class of 1925. Mr. Thomson became an internationally known trademark attorney as senior partner in the firm of Thomson and Thomson. A member of the Northeastern Corporation since 1958 and a Trustee of the University since 1960, he was also a Director of The National Council, former President of the Northeastern Alumni Association, and a member of the Board of Directors of Nu Epsilon Zeta fraternity.

The scholarship is awarded annually to one or more deserving and needy students enrolled as freshmen and/or upperclassmen who demonstrate a desire to fulfill the limits of their ability in academic and cooperative periods of study. The scholarship is open ended so that additional sums can be added to it in future years and will be administered and awarded by the University without restrictions as to race, creed, geographic origin, or scholastic attainment. It would be Mr. Thomson's desire that scholarship recipients assume a moral obligation to reimburse this or other scholarship funds as they may be able, in order to make additional financial aid available for other students in later years.

**The Eliot F. Tozer
Memorial Scholarship**

Business Administration
and Engineering

This fund was established in 1972 through the generosity of the members of the Class of 1931 in memory of their faculty adviser, Eliot F. Tozer. The scholarship is awarded annually to students of proven need in the middler, junior, or senior classes of the day Colleges of Engineering or Business Administration. The scholarship is open-ended so that additional sums can be added to it in future years. It will be administered and awarded by the University without restrictions as to race, creed, geographic origin, or scholastic attainment.

**Charles Irwin Travelli
Scholarships**

All Colleges

Numerous scholarships have been given yearly since 1950 to students demonstrating financial need, high academic achievement, and an active interest in University life as shown by participation in one or more major activities. Students are named as recipients of Travelli Scholarships at the completion of their sophomore years. Under normal circumstances, these awards will continue through the senior year.

Trustee Scholarships

All Colleges

Established in 1928 by the Board of Trustees of Northeastern University, these full- and partial-tuition scholarships are granted in the Basic Colleges each year to entering freshmen who have demonstrated superior scholastic attainment throughout their preparatory or high school courses.

**Robert E. Turner
Memorial Scholarship Fund**

Business Administration

This scholarship fund was established in 1978 through the generosity of family, friends, and colleagues in memory of Robert E. Turner, a 1952 graduate of Northeastern's College of Business Administration who was associated with the University for eighteen years. The income from this fund is awarded annually to assist a College of Business Administration undergraduate student majoring in accounting who demonstrates financial need, academic stability, and soundness of character.

**Samuel Ulman
Scholarship Fund**

All Colleges

This fund was established in 1960 by Mrs. Samuel Ulman in memory of Samuel Ulman, a student at Northeastern University from 1912 to 1915. The purpose of the fund is to provide scholarship assistance to students in good academic standing who have financial need.

University Scholarships

All Colleges

Northeastern University has for many years maintained a scholarship fund for deserving qualified students. These scholarships are awarded on the basis of need, scholastic standing, and campus citizenship. The recipient of a Northeastern scholarship must be willing to assume a moral obligation to repay the University at some future date.

**Sabestino Volpe
Scholarship Fund**

Engineering

The Sabestino Volpe Scholarship Fund was established in 1972 through the generosity of Mr. Sabestino Volpe, a distinguished alumnus of the College of Engineering and a member of the Class of 1928. The income from the fund is awarded annually as a scholarship to an upperclass student enrolled in the day Civil Engineering degree program within the College of Engineering. Recipients must demonstrate financial need, academic stability, and soundness of character.

Henry E. Warren Scholarships

All Colleges

Established in 1958 by the Warren Benevolent Fund, Inc., the purpose of these scholarships is to encourage students to gain cooperative work experience reinforcing study in their major fields.

Scholarship awards in the total amount of \$1,000 are awarded annually without restrictions as to race, creed, or national origin to upperclass students in fields in which related cooperative work positions are few or poorly paid. The recipients of the scholarship must have demonstrated good scholastic standing, fine character, and financial need.

**The Jacob Wasserman
Scholarship Fund**

Pharmacy

Established in 1966 by his friends in memory of Jacob Wasserman, this fund is to provide scholarship aid to a senior student in the College of Pharmacy and Allied Health Professions. The award will be made annually on the basis of financial need, academic performance, and personal qualities.

Other Scholarships

The following scholarships are funded by outside sources. Traditionally, Northeastern University students have been awarded these funds.

Recommendation for the specific award is made by one of the several college scholarship committees or the departments concerned, in conjunction with the Office of Financial Aid. If you feel you are a potential recipient for any of these awards, notify your financial aid counselor in writing.

**Dr. Martin E. Adamo
Scholarship**

Pharmacy

This scholarship of \$100 is given annually by the Boston Association of Retail Drug-gists in memory of Dr. Martin E. Adamo, the second president of the New England College of Pharmacy.

**American Foundation for
Pharmaceutical Education
Scholarships**

Pharmacy

The Board of Grants of the American Foundation for Pharmaceutical Education provides \$600 to be drawn upon to aid qualified students in the upper three years who are in the upper quarter of their class and who maintain a "B" or higher grade

average. It is understood that the students have received or are eligible to receive assistance in an amount at least equal to the grant provided by the Foundation from other University sources in payment of required college expenses. The use of the grant is restricted to the payment of tuition or other required college fees. The recipients are identified as "Scholars of the American Foundation for Pharmaceutical Education."

**The Boston Paper Trades
Association, Inc., Scholarship**
Business Administration

Established in 1966 by the Boston Paper Trades Association, Inc., this is an annual scholarship awarded to a junior or senior who has demonstrated, by cooperative work achievement and extracurricular activities, an interest and potential in the field of sales. The recipient must be of high character, have a good academic record, and be able to demonstrate financial need.

**Boston Society of Civil
Engineers Scholarship
In Memory of
Desmond Fitzgerald**
Civil Engineering

In 1931, the Boston Society of Civil Engineers established a scholarship in memory of Desmond Fitzgerald, a former president of the Society and an eminent hydraulic engineer with a distinguished record of service.

It has been awarded annually since 1931 to an outstanding Northeastern University senior or junior student in the Department of Civil Engineering of the College of Engineering. The presentation is made by the president of the Boston Society of Civil Engineers at the Society's annual meeting in the spring.

**Burroughs Wellcome
Revolving Loan Fund**
Pharmacy

A revolving loan fund was established by the Burroughs Wellcome Pharmacy Education Program to assist deserving pharmacy students in the completion of their education. This fund is established through the assistance of Richard M. Walent, Sheldon Rubin, Fred Matula, Daniel Venuti, and James Harb, members of the National Association of Retail Druggists.

**The William M. Cavanaugh
Memorial Scholarship**
All Colleges

This award, established by the members of the Publicity Club of Boston, is open to men and women of the junior and senior classes who demonstrate talent in the field of communications. The scholarship of \$100 bears the name of the second president of the Publicity Club (1950-1951), who was an able and successful newspaper man.

**Civil Engineering
Department Award**
Civil Engineering

The Civil Engineering Department Award was established by members of that Department to recognize achievement and give financial assistance to a student who has selected a major in the field of Civil Engineering. This award, in the amount of \$100, is financed by gifts from members of the Civil Engineering Department and is awarded to the recipient at the beginning of the sophomore year.

**Consumer Value Stores
Scholarship** Pharmacy

Preference will be given to a student entering the senior year who will be seeking a career in community pharmacy practice. Students who are working or have worked for Consumer Value Stores will be given added consideration. The final selection will be made on the basis of demonstrated financial need, personal qualifications, and a sound academic record. Two \$500 scholarships are offered each year.

**Electrical Manufacturers
Representatives Club of New
England, Inc., Scholarship**
Electrical Engineering

Established in 1958, this scholarship of \$475 is granted to a student or students majoring in Electrical Engineering, without regard to race, creed, or color. To qualify, students must have real financial need and excellent scholastic standing.

Frissora Family Scholarship
Award Engineering (Science majors)

This award was established by the Frissora family in 1972. Awards are made to freshmen entering Northeastern University, based upon their high school scholastic record and financial need. Preference is given to students of Italian-American extraction who are pursuing an education in a technically oriented curriculum such as engineering, science, mathematics, premedicine, or nursing.

Application for this scholarship award must be made through the Grand Lodge of Massachusetts, Order Sons of Italy in America, 126 Cambridge Street, Boston, Massachusetts. Students selected will receive a grant of \$300 per year for four years. Funds will be paid directly to Northeastern University.

**Gilman Brothers, Inc.,
Scholarship** Pharmacy

This scholarship of \$250 is given annually by Gilman Brothers, Inc., to help students further their education in pharmacy.

**Massachusetts State
Pharmaceutical Association
Scholarship**
Pharmacy

This scholarship of \$200, established by the Massachusetts State Pharmaceutical Association, is awarded annually. The recipient must be a resident of Massachusetts.

The Massachusetts State Pharmaceutical Association also awards a number of scholarships of \$100. Applications for these scholarships may be secured from the office of the Association at 11 Beacon Street, Boston.

**McKesson and Robbins, Inc.,
Scholarship Award**
Pharmacy

This award of \$200, given annually by McKesson & Robbins, Inc., is awarded to a worthy student who is in financial need. The award recipient is determined by the College of Pharmacy Scholarship Committee and the Office of Financial Aid.

**The New England Paper
Merchants, Inc., Scholarship**
All Colleges

Established in 1959 by the New England Paper Merchants Association, Inc., this is an annual scholarship awarded to a junior or senior who has demonstrated by cooperative work achievement and extracurricular activities an interest and potential in the field of sales. The recipient must be of high character, be able to demonstrate financial need, and have a good academic record.

**Norfolk County Pharmaceutical
Association Scholarship**
Pharmacy

This scholarship of \$50 is awarded annually to a student who meets the requirements both financially and scholastically and is a resident of one of the member towns covered by the Norfolk County Pharmaceutical Association (Norwood, Dedham, Canton, Walpole, Millis, Needham, Westwood, and Islington, in Massachusetts).

**Connecticut Alumni Rudolf O.
Oberg Scholarships**
All Colleges

Each year the Connecticut Alumni Club awards scholarships to students from Connecticut who have achieved a high academic average in their freshman year and have demonstrated financial need. The scholarships are to be used toward the tuition expense of the sophomore year. These scholarships were established in 1958 to promote Northeastern University among the preparatory schools of Connecticut and, in 1971, were named to honor Rudolf O. Oberg, the former Director of Alumni Relations.

**The Sidney L. Sholley
Memorial Scholarships**
All Colleges

The Sidney L. Sholley Memorial Scholarships have been established by the Trustees of the Keystone Charitable Foundation in memory of Mr. Sidney L. Sholley, founder and first president of the Keystone group of mutual funds. Two scholarships of \$600 each will be awarded annually to incoming freshmen. Recipients of the scholarships will be known as the Sidney L. Sholley Scholars.

**South Middlesex
Pharmaceutical Association**
Pharmacy

This tuition scholarship of \$100 established in 1960 is awarded annually to a pharmacy student enrolled in the third, fourth, or fifth year who is in good scholastic standing and in financial need, and living in the area covered by the South Middlesex Pharmaceutical Association (Arlington, Belmont, Lexington, and Watertown, Massachusetts). The recipient will be selected by the Scholarship Committee.

**South Shore Pharmaceutical
Associaton Scholarship**
Pharmacy

In June of each year, the Scholarship Committee of the Association will select a freshman living in the area covered by the South Shore Pharmaceutical Association (Quincy, Braintree, Weymouth, Hull, Randolph, Hingham, Holbrook, and Cohasset, Massachusetts), who will be awarded a \$100 scholarship to be applied to the tuition of the first semester of the sophomore year.

**Springfield Druggists'
Association Scholarship**
Pharmacy

A scholarship of \$100 is offered by the Springfield Druggists' Association. This is to be awarded to a sophomore or junior who maintains the highest average in the Department of Pharmacy and who is worthy and in need of financial assistance. The Springfield Druggists' Association Scholarship Fund was established in 1956.

Honor Societies and Awards

Honors and Awards

The University encourages the achievement of excellence in scholarship by making monetary awards and chartering honor societies in the various academic disciplines.

Honor Societies

The following honor societies are chartered in the Colleges:

- The Academy—in the College of Arts and Sciences
- Alpha Phi Sigma—in the College of Criminal Justice
- Alpha Pi Mu—in the College of Engineering, Department of Industrial Engineering and Information Systems
- Beta Alpha Psi—in the College of Business Administration, Accounting concentration
- Beta Gamma Sigma—in the College of Business Administration (Massachusetts Delta Chapter)
- Boston-Bouvé College of Human Development Professions Honor Society—in the College, all Departments
- Chi Epsilon—in the College of Engineering, Department of Civil Engineering
- Delta Phi Alpha—national German honor society
- Eta Kappa Nu—in the College of Engineering, Department of Electrical Engineering (Gamma Beta Chapter)
- Kappa Delta Pi—in the College of Education
- Omega Chi Epsilon—in the College of Engineering, Department of Chemical Engineering
- Phi Alpha Theta—in the College of Arts and Sciences, Department of History (Northeastern Zeta Tau Chapter)
- Phi Kappa Phi—national interdisciplinary honor society
- Phi Sigma—in the College of Arts and Sciences, Department of Biology
- Phi Sigma Iota—in the College of Arts and Sciences, Romance Languages (Iota Zeta Chapter)
- Pi Sigma Alpha—in the College of Arts and Sciences, Department of Political Science (Northeastern Delta Gamma Chapter)
- Pi Tau Sigma—in the College of Engineering, Department of Mechanical Engineering (Northeastern Tau Chapter)
- Rho Chi Society—in the College of Pharmacy and Allied Health Professions (Beta Tau Chapter)
- Sigma Epsilon Rho—in University College
- Sigma Theta Tau—in the College of Nursing
- Sigma Xi—Scientific Research Society of North America
- Tau Alpha Pi—in Lincoln College (national engineering technology honor society)
- Tau Beta Pi—in the College of Engineering (Massachusetts Epsilon Chapter)

Election to the college honor societies is based primarily upon scholarship, but, before a man or woman is privileged to wear the honor society insignia, there must be evidence of an integrity of character and an interest in the extracurricular life of the University. The societies have memberships consisting of the outstanding men and women in the colleges. Election to an honor society is the highest honor that can be conferred upon an undergraduate.

Awards for Upperclassmen

University awards are determined by scholastic and citizenship achievement. They are presented by appropriate committees headed by the Dean of Students.

The Academy Award

Arts and Sciences

The Academy, the honor society of the College of Arts and Sciences, offers an annual award of \$100 to the sophomore in the College of Arts and Sciences who, during the previous year as a freshman, achieved the highest scholastic record.

William Jefferson Alcott, Jr.,

Award All Colleges

This award of \$200 was established in 1934 by members of the faculty and other friends to perpetuate the memory of William Jefferson Alcott, Jr., a brilliant member of the Northeastern Department of Mathematics from 1924 until his death in 1933. The annual award to a senior is made from the income of the fund "for outstanding performance, either in the way of unusual excellence in routine work or in connection with some intellectual activity outside or beyond the requirements of the curriculum."

**Alumni Awards for
Professional Promise**

All Colleges

Established in 1947 by the Alumni Association, these awards are presented annually at an Alumni Association meeting in the spring of the year. The awards are made to the outstanding seniors in each of the Basic Colleges and in University and Lincoln Colleges who have demonstrated unusual professional promise through their character traits, scholastic achievement, and cooperative work performance.

The Beta Gamma Sigma Society

Award Business Administration

"The purpose of this society shall be to encourage and reward scholarship and accomplishment among students of business administration, to promote the advancement of education in the art and science of business, and to foster integrity in the conduct of business operations."

Election to membership in Beta Gamma Sigma is the highest scholastic honor open to a student in business administration.

The Massachusetts Delta Chapter of Beta Gamma Sigma, the national honor society of colleges of business administration, offers an annual scholarship of \$100 to the sophomore in the College of Business Administration who, during the previous year as a freshman, achieved the highest scholastic record.

**Boston-Bouvé College of
Human Development Professions**

Honor Society Awards

Boston-Bouvé College of
Human Development Professions

The Society offers an annual award of \$100 to the sophomore in Boston-Bouvé College of Human Development Professions who, during the previous year as a freshman in the College, achieved the highest scholastic record. Each student voted into the Society receives an engraved certificate at a special Honors Assembly.

Cooperative Education

Awards All Colleges

These awards are presented to seniors in each of the Basic Colleges in recognition of outstanding performance in the Cooperative Education Program, through which they have personified the objectives and ideals of the University. The awards are presented at the Annual Awards Luncheon.

Sears B. Condit

Honor Awards

All Colleges

These awards were established in 1940 through the generosity of Sears B. Condit. On Honors Day, Sears B. Condit Honor Awards are presented annually to outstanding students in the senior class. Each award carries a stipend as well as a certificate of achievement.

**Joseph Arthur Coolidge
Achievement Awards**
Physical Sciences

Established in 1977 with funds provided by the will of Joseph A. Coolidge, a distinguished member of the Northeastern University faculty from 1911 to 1954 and Chairman of the Department of Physics from 1912 to 1935, three awards of \$500 each are granted annually to the outstanding sophomore, middler, and junior physical sciences students. These awards are based primarily on distinguished academic achievement, with additional consideration given to soundness of character, participation in extracurricular activities on and off campus, and qualities of leadership. Preference will be given to students majoring in physics, mathematics, or other physical sciences.

Director's Award

The Director's Award of \$100 is made annually by the Director of the African-American Institute to the individual judged by the Director to be the most outstanding black senior. The award is based on involvement in African-American Institute programs and scholarship, as well as interaction with the community at large. The award is presented at the Awards and Unity Banquet in June.

Alfred J. Ferretti Award
Engineering

Tau Kappa Chapter of Pi Tau Sigma, the Mechanical Engineering national honor fraternity, sponsors an annual award to the sophomore mechanical engineering student at Northeastern having the highest scholastic standing. The award is named in honor of Professor Ferretti, who retired June 30, 1961, after forty-three years of service to the University.

**Luis de Flores
Endowment Fund**
All Colleges

This fund was established in 1964 to provide yearly awards to students in recognition of superior ingenuity, irrespective of general academic standing.

**Clara and Joseph F. Ford
Awards**
All Colleges

The Ford Awards are made to students who have shown a democratic and tolerant spirit and who are well disposed toward people of all creeds and races. They are chosen from the senior class and judged on the basis of their contributions through participation or leadership and their extracurricular organizations. Students must have demonstrated by their actions that they are particularly tolerant and willing to work with and for other people.

**The Harold D. Hodgkinson
Achievement Awards**
All Colleges

Established in 1954, the Harold D. Hodgkinson Achievement Awards of at least \$750 each are granted annually to a senior student in Division A and Division B. The winners of the awards are known as the Hodgkinson Scholars for the year in which they are chosen.

The award is based primarily upon distinguished scholastic achievement with due consideration of character, personality, qualities of leadership, cooperative work experience, military record (if any), and service in voluntary organizations and activities. Student leadership accomplishments and professional potential are evaluated in connection with these criteria.

The Hodgkinson Scholars are chosen by a committee of administrative members of the faculty. An appropriate certificate is presented to each recipient as a permanent record of his/her selection.

Kappa Delta Pi Award

Boston Bouvé College of
Human Development Professions

Kappa Delta Pi honor society offers an annual award of \$100 to the sophomore who, during the freshman year, achieved the highest scholastic record.

**Robert D. Klein Memorial
Scholarship**

Arts and Sciences

This scholarship was established in 1981 through the generosity of family, friends, and colleagues of Professor Klein, who joined the Northeastern University faculty in 1957, served as acting chairman of the Department of Mathematics between 1969 and 1970 and, from 1977 until his death in 1978, was a professor of mathematics. The scholarship is awarded annually to a freshman student enrolled in the College of Arts and Sciences who demonstrates consistent effort and academic achievement in remedial mathematics, the educational program to which Professor Klein contributed so significantly.

The Lilly Achievement Award

Pharmacy

The Lilly Achievement Award is given to a graduating senior for superior scholastic and professional achievement. Leadership qualities, professional attitudes, and academic performance will be considered in the selection of the individual for this award.

**Julia and Merrill Robert
Lovinger Award**

All Colleges

This annual \$100 award was established in 1960 by William Lovinger for the purpose of giving assistance to a student of acceptable scholastic standing who can demonstrate financial need.

Robert Lubets Award

Business Administration

The award was established in 1953 by the Boston accounting firm of Robert Lubets & Company to recognize outstanding professional development and personal growth by students training for careers in accounting. Two hundred dollars will be awarded to a degree candidate who, at the completion of the junior year, has demonstrated the greatest personal growth and professional development as evidenced by improvement in scholastic achievement accompanied by professional aptitude indicative of future success as an accountant.

**McKesson & Robbins, Inc.,
Scholarship**

Pharmacy

This scholarship of \$200, given annually by McKesson & Robbins, Inc., is awarded to a worthy student in financial need.

**Susan L. Orchard
Memorial Fund**

All Colleges

In 1978, the Susan L. Orchard Memorial Fund was established at Northeastern in memory of Susan L. Orchard, a former University student. Reflecting Susan's interest in improving the quality of life and opportunities for women, the annual income of this fund will be awarded to mothers pursuing their studies at Northeastern who require financial assistance in order for their children to make use of the University's Day Care Center. Recipients will be selected by the Center's Director and Advisory Committee.

**Ruth E. Phalen Memorial
Award Fund**

All Colleges

This fund was established in 1959 by Thomas E. Phalen, Jr., a member of the faculty, in memory of his wife. The income from this fund is used yearly as a cash award

to a senior, junior, or middler, preferably in the College of Engineering, who maintains at least a 2.0 academic average, shows outstanding ability in one or more varsity sports, and demonstrates excellent campus citizenship.

The Phi Sigma Society Award
Arts and Sciences

Phi Sigma, honor society in the Department of Biology, offers an annual award of \$50 to the junior or senior majoring in biology or a related science who demonstrates the greatest research potential. To qualify for the award, the student must be a member of Phi Sigma.

**Roland Guyer Porter
Memorial Fund**
Electrical Engineering

This fund was established in 1953 by colleagues and friends of the late Professor Roland G. Porter, for many years the head of the Department of Electrical Engineering. Interest from the fund provides an annual award to a student in the Department of Electrical Engineering who best exemplifies the qualities of mind and character that Professor Porter did so much to develop in his lifetime.

President's Awards
All Colleges

On the annual Honors Day, six awards of \$200 each, known as the President's Awards, are presented to the students with the highest records in both divisions of the sophomore, middler, and junior classes.

The William Rand Award
Engineering

The Massachusetts Epsilon Chapter of Tau Beta Pi annually offers an award to the outstanding middler in the College of Engineering. The award is based upon outstanding scholarship, breadth of interest, and contribution to the University. All middle-ers with a 3.5 average or above are eligible; the winner is chosen after careful screening and interviews with members of the chapter.

**The Mildred A. Reardon
Scholarship Award**
All Colleges

Delta Pi Alpha Sorority sponsors an annual award of \$100 to a deserving coed in the Basic Colleges. Selection is made by the Dean of Students on the basis of academic standing and other considerations. The award is given in honor of an outstanding alumna of Northeastern and Delta Pi Alpha, whose academic excellence, strength of character, and qualities of leadership have typified the ideal for which the sorority strives.

ROTC Awards
ROTC

Awards totaling \$1,000 are available to ROTC cadets each year. The University offers ten \$50 awards annually—four to sophomores, four to middle-ers, and two to juniors.

Scabbard and Blade (the cadet officers' honor society) offers one award annually to middle-ers. The Pershing Rifles (the basic-course honor society) offers a \$50 award to a sophomore Pershing Rifles cadet.

Academic Achievement Awards are won by each cadet in the top 10 percent of ROTC classes. This award, a wreath, is worn above the right breast pocket of the uniform during the year immediately following the year it is earned. Leadership Achievement Awards, consisting of letters of commendation, are awarded to each cadet in the top 10 percent in leadership potential.

Many medals and trophies are also awarded by other organizations to ROTC cadets for achievements in diverse fields.

Nguzo Saba Award

Two Nguzo Saba Awards are presented each year by the African-American Institute to the black male and female who have proved themselves of invaluable service to the black community of Northeastern University and Boston. The award is in the amount of \$100 and is presented at the Awards and Unity Banquet.

Sigma Theta

Nursing

Sigma Theta, the honor society in the College of Nursing, annually offers an award of \$100 to the sophomore in the College of Nursing who, during the previous year as a freshman, achieved the highest scholastic record

Professor Joseph Spear Fund for Excellence in Student Activities

This fund was established by the College of Engineering Class of 1923 in recognition of Professor Spear, class adviser and mentor. It was through Professor Spear's devotion and concern for the well-being of the students that he developed and promoted student activities at Northeastern University. Professor Spear has been referred to as the "Father of Student Activities." The purpose of this fund is to provide a source of income that can be awarded annually to juniors and seniors who have made outstanding contributions to student activities.

Max Starr Award

Business Administration

The Max Starr Award in Public Accounting was established in 1968 by the Max Starr Foundation to recognize every other year an outstanding member of the junior class in the College of Business Administration preparing for a career in public accounting. The recipient is chosen on the basis of both academic and cooperative work records as well as personal qualities. The student receives awards of \$250 in both the junior and senior years.

Tau Beta Pi Award

Engineering

Massachusetts Epsilon Chapter of Tau Beta Pi Association, national honor society in engineering, annually offers a scholarship of \$100 to the sophomore in the College of Engineering who, during the previous year as a freshman, made the highest scholastic record.

Housing

Residence Halls

Northeastern University's location, in one of the most central and exciting sections of Boston, offers the student an opportunity to participate in many cultural and educational activities. With residence halls on the Back Bay campus, between the Museum of Fine Arts and Symphony Hall, the city is at your doorstep. Northeastern's library, student center, and athletic facilities are nearby.

Most of the residence halls have lounge areas and recreation rooms, including color television. Privacy and a quiet study environment are encouraged, but students must recognize that residence-hall living cannot provide the privacy and quiet they may enjoy in their own homes. However, the benefits, as well as the occasional inconveniences of living in a community, may contribute to personal growth.

A natural advantage of residence living may be the increased involvement in social and educational activities. Students are encouraged to join the committees that make decisions about student life.

Full- or part-time residence-hall staff reside in each residence facility.

Housing Application and Contract

Students requesting University housing on their application for admission will receive two housing applications with their certificate of acceptance: one for their files and one to be returned with the required \$100 housing deposit to the Office of the Bursar, 245 Richards Hall. Assignments are mailed approximately four weeks prior to registration.

A housing contract will be distributed after the application and deposit are received by the established deadline. The freshman contract is for three full quarters; upperclass transfer students must file applications on a quarterly basis as their contract is valid for only one quarter at a time. Contracts for summer quarter freshmen are handled on an individual basis in accordance with the student's academic schedule.

Married and Graduate Housing

No University housing is available for married or graduate students. However, the University does maintain listings of off-campus rooms and apartments. These are available at the Housing Office, 104-106 Ell Building. **Though the Housing Office has agreed to make this listing available, we do not inspect or endorse the advertised property or space.**

The Selection

The choice of housing is an important consideration for the first year, and freshmen are encouraged to visit Northeastern before making a decision. Tours of residence halls are available by advance arrangement with the Department of Admissions.

Upperclass and transfer students may live in residence halls or apartments. Freshmen are usually assigned to residence halls unless available space exists only in apartments.

Most rooms are designed to accommodate two students; however, some three- and four-person rooms are available in certain of these facilities. Some residence halls feature "group areas" that house from three to six students in a two- or three-room area.

The University maintains many apartment units for men and women. These apartments accommodate up to four students. Assignments are made, based on the date of receipt of the housing deposit and application. Each unit is fully furnished, and the rental charge includes utilities.

Off-Campus Housing

Arrangements for off-campus housing are the responsibility of the student and the student's family. Though the Housing Office, 104-106 Ell, has agreed to make a listing of off-campus housing available, **we do not inspect or endorse the advertised property or space.**

Fraternity Housing

Certain fraternities provide opportunities for room and board for men at reasonable rates. Information regarding these housing facilities may be obtained from the Housing Office, 104-106 Ell, Northeastern University, Boston, Massachusetts 02115.

Cars

Freshmen living in residence halls are not allowed to have cars or other powered vehicles on campus.

Upperclass students are strongly discouraged from bringing cars with them, as the University does not permit overnight parking, and there is a severe shortage of public parking spaces near the University.

Costs for Room and Board Per Quarter*

Women's Residence Halls

Kerr Hall (upperclass students only)	\$1000.00
157-163 Hemenway	\$1090.00

Coed Residence Halls

Smith Hall (upperclass students only)	\$1000.00
Speare Hall	\$1090.00
Stetson Hall West	\$1090.00
Stetson Hall East	\$1090.00
White Hall	\$1000.00
YMCA (includes cost of single room)	\$1025.00
153 Hemenway Street	\$1090.00
115 Hemenway Street	\$1090.00
119 Hemenway Street	\$1090.00

Men's Residence Halls

Melvin Hall	\$1000.00
Light Hall	\$1000.00

Coed Apartments (Costs do not include Food Card)

106-122 St. Stephen Street	\$ 645.00
Fairwood Realty—Huntington Avenue	\$ 590.00
Scott Mgt.—454 Huntington Avenue	\$ 590.00
Rubenstein Hall—464 Huntington Ave.	\$ 645.00
West Apartments—50 Leon Street	\$ 695.00

With the exception of the YMCA, all single rooms are charged at an additional rate of \$50. An infirmary fee of \$25 per quarter is charged to resident students.

***Costs and types of residence halls (coed, men, women) are subject to change.**

Security

Security for the residence halls is provided by trained University police officers. In addition, residents are required to show appropriate identification to the security proctor when entering the residence hall. Guests, both male and female, must sign in with the proctor.

The University police provide escort service for students who wish to go from one section of the campus to another late at night.

University Food Service

The University food plan provides for twenty-one meals per week, and all students who live in University residence halls **are required to participate**. The cost of a food card for those living in an apartment and choosing the food plan is \$500 per quarter. When conditions warrant, such as during weekends and slow periods, the University may close or consolidate certain dining facilities.

Student Activities

The University regards student activities as an integral part of education and provides for a range of activities to arouse your interests and satisfy your inclinations: you are given the opportunity to play intramural sports on a wide variety of teams; write for the *Northeastern News*; broadcast over the student-operated radio station; act, dance, sing, play music; or become involved with student government.

The University encourages relaxation and socializing: you can dance to live music in the Rathskeller any evening or weekend and meet a lot of new friends. We sponsor a lecture series, films, and performing arts: listen to speakers such as Tom Wicker, Jesse Jackson, or Tom Wolfe. See great new and old films for a dollar in Alumni Auditorium, hear jazz and classical groups, and watch theater, dance, and virtuoso performances. Once you begin to take advantage of what is available on campus, there's no telling what you will learn or whom you might meet.

If you are a commuter student, it is likely that a good portion of your between-class time will be spent in the Carl S. Ell Student Center. The dominant feature of the main level of this "student building" is the magnificent main lounge. Five stories in height, the lounge will comfortably seat 800 students—a good place for quiet conversation or contemplation. Below the lounge are a cafeteria and the Rathskeller, where the sounds are much more audible. In addition, the Center has a ballroom, sidewalk cafe, music practice rooms, a large gameroom with pool and ping-pong tables, and many meeting and function rooms. The Student Center is that part of Northeastern University where you can relax and really feel comfortable and at home—a sort of "living room" of the campus.

Each Monday and Thursday, the hours between 11:30 a.m. and 1:30 p.m. are reserved for student activities. No classes are held during these times, to allow students an uninterrupted period of time for themselves. Student clubs, intramural sports, cultural events, and many other activities are scheduled to provide opportunities to make spontaneous or planned use of your time. You have the chance to become involved in campus activities, whether you reside in the residence halls or are a commuter, without interfering with your academic commitments.



Student Organizations

All University Activities

Disabled Students Organization
Gay Students Organization
Husky Key Society
National Black Student Organization
Social Council
Student Affairs Committee
Student Center Committee
Student Court
Student Government Association
Student Union
Women's Center
WRBB-FM Radio

Artistic and Musical Organizations

Band
Choral Society
Dance Theatre
Jazz Dance Club
Jazz Society
Orchestra
Silver Masque

Departmental and Academic Organizations

Association for Computing Machinery
American Society of Personnel Administrators
Beta Biological Society
Black Business Student Association
Black Engineering Student Society
Business Student Advisory Committee
Computer Club
Co-op Student Advisory Committee
Criminal Justice Advisory Council
Evening Student Council
Financial Management Association
Geology Club
History Club
Human Resource Management Club
Human Services Student Organization
Marketing Club
Medical Laboratory Science Club
Medical Records Student Association
Physical Education Majors Club
Physics Club
Political Science Student Advisory Committee
Recreation Majors Club
Respiratory Therapy Club
Speech and Hearing Club
Student American Pharmaceutical Association
Student-Faculty Biology Relations Committee
Student Industrial Security Association
Student Nurses Association
Toxicology Student Association

Political and Social Action Organizations

Right to Life
Student Democrats for Economic Stability
Young Democrats
Young Republicans

Publications

Cauldron
Northeastern News
Onyx
Spectrum

Recreation Clubs

Chess Club
Downhill Skiers
Dragon Club
Flying Club
Hang-Gliding Club
Hus-Skiers and Outing Club (NUHOC)
Judo Club
Karate Club
Kung Fu Club
Model Railroad Club
Modern Dance Club
Photography Club
Radio Club
Sailing Club
Shotokan Karate Club
Table Tennis Club
Tactical Society
Underwater Society

Religious Organizations

Bahai'
Christian Fellowship
Christian Science Organization
Episcopal Student Association
Hillel
Islamic Society
Lutheran Campus Ministry
Navigators
Seekers Christian Fellowship
St. Ann's University Parish
Student International Meditation Society

Reserve Officers' Training Corps

Pershing Rifles
Scabbard and Blade

Special Interest

Armenian Club
Chinese Student Club
Confederation of Iranian Students
Federation of Nigerian Students
Haitian Student Unity
Hellenic Club
International Students Forum

Iranian Student Organization
Korean Student Association
Latin-American Student Union
Liberia Association
Organization of Arabic Students
Persian Student Society
Vietnamese Student Club

New Horizons

This program, sponsored by the Student Activities Department, is designed to provide enjoyment as well as the opportunity to engage in a unique learning experience.

The series of free, noncredit mini-courses is conducted by qualified persons in special areas of interest. There are no grades, no transcripts, and no examinations. In a few courses, textbooks are required; in areas such as the performing arts, contemporary issues, crafts, or media, a material fee may be required.

Enrollment in courses is determined on a priority basis with first opportunities for registration to full-time undergraduate and graduate students, and on a space-available basis on the last day of registration to other members of the Northeastern community.

Course enrollment is limited by the nature of the subject matter and the size of the facility. Registration is on a first-come, first-served basis.

For questions, brochures, or applications to teach a free mini-course, call or visit the Office of Student Activities, Room 255 Ell Center; telephone: 617-437-2634.

Fraternities

The twelve recognized fraternities and two colonies play an important role in the extracurricular life of the University. A list of the fraternities and their addresses are as follows:

Alpha Epsilon Pi
25 and 27 Litchfield Street
Brighton, Massachusetts 02135
617-254-4067

Alpha Kappa Sigma
29 Greenough Avenue
Jamaica Plain, Massachusetts 02130
617-524-9869

Beta Gamma Epsilon
234 Commonwealth Avenue
Boston, Massachusetts 02116
617-262-1639

Delta Chi
360 Huntington Avenue
(255 EC)
Boston, Massachusetts 02115

Gamma Phi Kappa
11 Vancouver Street
Boston, Massachusetts 02115
617-427-8774

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Iota Phi Theta
360 Huntington Avenue
(255 EC)
Boston, Massachusetts 02115

Kappa Alpha Psi
360 Huntington Avenue
(255 EC)
Boston, Massachusetts 02115

Nu Epsilon Zeta
255 St. Paul Street
Brookline, Massachusetts 02146
617-566-9804

Phi Beta Alpha
360 Huntington Avenue
(255 EC)
Boston, Massachusetts 02115

Phi Beta Sigma
360 Huntington Avenue
(255 EC)
Boston, Massachusetts 02115

Phi Gamma Pi
241 Kent Street
Brookline, Massachusetts 02146
617-566-8970

Phi Sigma Kappa
37 Greenough Avenue
Jamaica Plain, Massachusetts 02130
617-524-9893

Tau Kappa Epsilon
30 Mansfield Street
Allston, Massachusetts 02134

Zeta Beta Tau
42 Chestnut Square
Jamaica Plain, Massachusetts 02130
617-522-5162

Sororities

The three recognized sororities and one colony for women also play an important role in the extracurricular life of the University. Although none has a separate house, they can all be reached through the Office of Student Activities, Room 255 EC, or the Intersorority Council adviser in the Dean of Students' Office, 203 EL, at the University. The names of the sororities follow:

Alpha Kappa Alpha
Delta Phi Epsilon
Delta Sigma Theta

Sports

The University provides opportunities for all students to participate in athletic programs that correspond to the abilities and inclinations of most students. We especially wish to provide each of you with a chance to develop skills and competence for lifelong athletic pursuits. Along with many casual, drop-in opportunities are chances for all to participate as members of intramural teams. Examples of intramural sports include touch football, basketball, volleyball, soccer, ice hockey, wrestling, softball, and track.

Professional Societies

Students will benefit in many ways by joining the student chapter of a professional society in an area of study of particular interest to them. They have the opportunity to keep up with latest developments by listening to authorities in that field, to exchange ideas with students from other colleges and universities as well as from Northeastern, and to learn more about professional standards.

If students take an active part by attending regular meetings and social affairs, they may become officers or members of a delegation to meetings outside the University. Such participation may prove invaluable in shaping a career.

The following professional societies, the majority of which are national organizations, are open to upperclassmen in their respective professional fields:

American Chemical Society
American Institute of Chemical Engineers
American Institute of Industrial Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
Council of Professional Engineering Societies
Institute of Electrical and Electronic Engineers
National Student Nurses Association
Sigma Delta Chi (Journalism)
Society of Women Engineers
Society of Women in Business

Photo-Identification Operation

All full-time students, staff, and faculty are required to have an officially approved and properly validated photo-identification card. All students are required to show the card at the Library, athletic events, student elections, Health Services, and the Bursar's or Registrar's Office.

An official I.D. card will be issued to new students at their initial orientation and registration periods. Replacements for lost cards can be obtained by going FIRST to the Bursar's Office, 248 RI, and then, for the photo, to 255 EC between the hours 11:30 a.m.-2:30 p.m., Monday through Friday. A charge of \$2 is levied for the initial ID card; \$5 for a replacement.

Religious Life

Interfaith chapel services are held in the Bacon Memorial Chapel, located in the Eli Student Center. These voluntary religious services are planned to commemorate special days and events and will be announced suffi-

ciently ahead of time. The Chapel is also used for denominational worship services and special lectures on religion. It is open daily for prayer and meditation and is a frequent setting for weddings of students and alumni. The denominational chaplains are available in nearby Chaplains' Rooms.

The Northeastern Interfaith Chaplain's Association, along with the Advisory Committee on University Religious Life, has genuine concern for the religious and moral development of students of all faiths. Although the religious life at Northeastern emphasizes the interfaith and ecumenical spirit, denominational student organizations are given full support on campus. These organizations are officially recognized by the Student Affairs Committee and are listed under "Student Organizations" in the section entitled "Religious Organizations." Most of these groups have their chaplains, their officially appointed faculty advisers, and student officers.

Men's Athletics

Whether it be on the astroturf of Parsons Field in the fall, the ice of the Northeastern Arena in the winter, or the waters of the picturesque Charles River in the spring, a Northeastern athletic team is always competing somewhere.

And that somewhere is sometimes Henley on Thames, England; San Diego; Madison Square Garden, New York; and Fenway Park, Boston. In fact, you could include Montreal in the summer of '76 when three Northeastern alumni (more than any other New England college) were members of the United States Olympic team, with one alumnus winning a silver medal.

All students are urged to participate in the University's athletic program, which includes all major collegiate sports. The University maintains varsity teams in baseball, crew, swimming, cross-country, track, football, hockey, skiing, basketball, and golf. These teams are among the finest in the East and have represented the University in both national and international competition. Students may also participate in such sports as sailing, water polo, volleyball, lacrosse, soccer, gymnastics, softball, handball, and fencing.

Facilities include the spacious Cabot Physical Education Center and Edward S. Parsons Field. The gymnasium contains four basketball courts, one gymnastics court, and a cage that provides facilities for indoor track as well as baseball and football drills. Parsons Field is the location of the Huskies' football stadium with its new artificial surface and the Northeastern baseball diamond. It also accommodates training areas for the outdoor track team. The Northeastern crew enjoys a spacious white boathouse on the Charles River and also works out in the Cabot complex, where rowing tanks are located. The hockey team makes its home in the historic "Boston" Arena, now the Northeastern Arena, located only yards away from the campus.

Northeastern annually fields one of the toughest football teams in New England. In their forty-five years of football history, the Huskies have enjoyed three undefeated seasons and in 1963 went on to play in the Eastern Bowl. Northeastern always plays a commanding schedule including, in recent years, such opponents as Harvard, Holy Cross, Colgate, UMass, Bucknell, New Hampshire, and Rhode Island.

The University's hockey team is traditionally one of the most powerful in the East. It is annually ranked in the top ten in the East and has competed in several Eastern College Athletic Conference championships. The Husky icemen have also won the E.C.A.C. Holiday Hockey Tournament in New York's Madison Square Garden, the R.P.I. Invitational, and the Yale Holiday

Festival. Each year they play in the popular Beanpot Tournament before standing-room-only crowds at the Boston Garden. In fact, the team won its first Beanpot in 1979-80—making Northeastern the first New England college to win both the men's and women's contests in the same year.

The basketball team wages its war in the tough Division I League of the N.C.A.A. It plays local powers such as Harvard, Boston College, UMass, and Holy Cross and is constantly flying out to challenge some of the country's best, such as Princeton, Georgetown, University of Alabama, University of Pennsylvania, American University, and Syracuse University. Even against the best in the East, it has had only two losing seasons in the last ten years.

To talk about track and cross-country in New England is to talk about Northeastern track. The Huskies have dominated the New England track scene for the past ten years. In fact, Northeastern has won five out of the last six New England indoor titles and the last two outdoor championships. The Huskies can boast of numbers of individual New England, I.C.A.A., and N.C.A.A. champions and last year had two runners on the United States Touring Track Team.

Northeastern also fields strong teams in golf and skiing and competes in all the major eastern championships. In skiing, Northeastern won the CAN-AM Championship in 1978 and again in 1979.

The most amazing Husky sport story is that of the Northeastern crew. In 1965, their first season, they won four out of five regattas and the small-college rowing championships and became the first N.U. team to participate in international competition when they rowed in the Henley Royal Regatta. The next year, the Huskies moved into the major-college rowing league. They culminated their swift rise by winning the Eastern Sprints in 1972 and 1973 and rowed in the finals of the Grand Challenge Cup of the Henley Royal Regatta. In 1973, they were considered the finest eight in the nation. In 1978, the freshman crew won the Eastern Sprints and was invited to row the Thames Challenge Cup race at Henley. In 1979, the junior varsity crew won the I.R.A. Championship.

The University has buttressed its physical fitness facilities campus-wide and now accommodates the daily influx of undergraduates, graduate students, staff, and faculty at Cabot Gymnasium. One of the most popular additions to the Cabot complex is the two-year-old Nautilus weight training room. The room is equipped with the revolutionary Nautilus apparatus as well as free-weights. Six racquetball courts are also available to students, athletes, faculty, or staff members.

Women's Athletics

From a very small program with very few resources, the Northeastern University women's intercollegiate athletic program has grown rapidly in the past several years, reflecting the tremendous growth in women's athletics at all levels. The program now encompasses eleven activities: basketball, crew, cross-country, field hockey, gymnastics, ice hockey, lacrosse, swimming and diving, tennis, track and field, and volleyball.

As charter members of the Association for Intercollegiate Athletics for Women, Northeastern University subscribes to all policies and regulations of the Association. Athletic scholarships are available to women student athletes in all programs.

Northeastern's goal is to provide an excellent program of intercollegiate



athletics for all women students who qualify. Our programs are in the mainstream of the exciting growth in women's athletics throughout the country.

The field hockey and lacrosse teams, using both our Warren Center facility in Ashland and the astroturf surface at Edward S. Parsons Field in Brookline, have long been regarded as among the strongest in New England. Our basketball and volleyball teams, working out of Dockser Hall and the Cabot Gymnasium on the Boston campus, have appeared regularly in state and regional championships. The tennis team, with recent steady improvement, is well respected in the region. Our gymnastics team, with a vastly upgraded schedule, is striving to reach a high level of regional competitive scoring.

Two of our youngest programs—crew, and swimming and diving—have shown rapid improvement, three of our divers having qualified for the A.I.A.W. Division II National Championship in 1979-80. In their second year as a varsity sport, the swimmers broke all their pool records in the first month of varsity competition and have improved steadily. The women's crew, also in its second varsity season, demonstrated rapid progress by finishing second and third in events of the 1979 Eastern Sprints.

Our three brand-new varsity teams—ice hockey, cross-country, and track and field—begin their varsity careers with fine reputations as clubs. In 1979-80, the women's ice hockey team won the Beanpot Tournament and was one of four teams in the Northeast selected to participate in the first E.A.I.A.W. Ice Hockey Championships. One member of our track and field team placed fifth in the country in shot put in 1979-80 and was selected for a U.S.A. national team trip to New Zealand in the winter of 1980.

We are moving rapidly toward excellence in all programs and look forward to an exciting year!

Freshman Orientation Programs

Except for the visits which we hope students will make to the Admissions Office, the first opportunity to learn about Northeastern and to meet classmates, deans, and advisers will come during the freshman orientation period.

The program for orientation is planned and supervised by the Director of Orientation who will see to it that students are introduced to the customs and people that make up Northeastern. At that time, registration, class schedules, and other procedures and details necessary for enrollment will be completed.

During the orientation period, in accordance with a long-standing tradition, students will be welcomed by the President at a special convocation. They also will be able to meet with deans and others who will have important roles in their college careers.

Upperclass students generously volunteer their time to assist in setting up and running programs, primarily evening events, that provide opportunities for relaxation, recreation, and cultural enrichment. The Office of the Dean of Students is available during the orientation period and throughout the year to answer questions and provide assistance. The Freshman Affairs unit of that office has special responsibility for monitoring the academic progress of all freshmen and for assisting them in a variety of ways to attain sophomore status.

Part Four

General Information



General Information

History

Founded in 1898, Northeastern University is incorporated as a privately endowed nonsectarian institution of higher learning under the General Laws of Massachusetts. By special enactment, the state legislature has given the University general degree-granting powers. The University is governed by a Board of Trustees who are elected by and from the Northeastern University Corporation, which is composed of 174 distinguished business and professional men and women.

From its beginning, Northeastern University's dominant purpose has been the discovery of community educational needs and distinctive and serviceable ways of meeting them. The University has not duplicated the programs of other institutions, but has sought to pioneer new areas of educational service.

A distinctive feature of Northeastern University is its Cooperative Plan, initiated by the College of Engineering in 1909 and subsequently adopted by the Colleges of Business Administration (1922), Arts and Sciences (1935), Education (1953), Pharmacy (1962), Nursing (1964), Boston-Bouvé College (1964), the College of Criminal Justice (1967), Lincoln College's daytime Bachelor of Engineering Technology Program (1971), and by University College in a special pilot program (1980). This educational method offers students the opportunity to gain valuable practical experience as an integral part of their college programs and also provides the means by which they may contribute substantially to the financing of their education. The plan has been extended to the graduate level in engineering, rehabilitation administration, professional accounting, business administration, and law.

In the field of adult education, the University offers graduate and undergraduate degree programs and noncredit programs that are specifically designed to meet the needs and interests of adults who wish to further their education on a part-time basis.

All formal courses of study leading to degrees in the Graduate Division, Lincoln College, and University College are approved by the undergraduate faculties concerned and are governed by the same qualitative and quantitative standards as the regular day curricula. Courses are scheduled in the day and evening at the Boston Campus, Suburban Campus in Burlington, and at other off-campus locations near Boston.

Policy on Changes of Program

The University reserves the right to withdraw, modify, augment, or change the order or content of courses in any curriculum.

It further reserves the right to change the requirements for graduation, tuition, and fees charged, and other regulations.

Any changes which may be made from time to time pursuant to the above policy shall be applicable to all students in the school, college, or department concerned, including former students who may re-enroll.

Textbooks and Supplies

The Northeastern University Bookstore, located on the ground floor of the Ell Student Center, is a department of the University and is operated for the convenience of the student body. All books and supplies that are required by the students for their work in the University may be purchased at the Bookstore.

The Academic Year

Northeastern University operates on a quarter-system calendar.

Quarter-Hour Credits

All courses are evaluated in terms of quarter-hour credit. A quarter-hour credit is equal to three-fourths of a semester-hour credit.

Grades and Examinations

Examinations covering the work of the quarter usually are held at the close of each quarter. Exceptions may be made in certain courses where, in the opinion of the instructor and with the approval of the dean of the college concerned, final examinations are not necessary.

Pass-Fail System

Students may register for a limited number of courses on a pass-fail basis. Each college has its own rules governing this system. Common to all colleges, however, is the grading system. Pass-fail grades are not included in the calculation of the quality point average. Only pass grades earn credits toward degree requirements. (Pass-fail guidelines are also stated in the *Student Handbook*.)

Grades

A student's grade is officially recorded by letter. Introduced in September 1980, the following grades, listed below with their numerical equivalents, are in effect:

A	4.0
A—	3.667
B+	3.333
B	3.0
B—	2.667
C+	2.333
C	2.0
C—	1.667
D+	1.333
D	1.0
D—	.667
F	0

A general average of C— is not acceptable and will not allow a student to continue at Northeastern University.

Freshman students who are taking a full academic program and who have a weighted average for the year below 1.4 will not be permitted to register for advanced work. Upperclass students should consult the *Student Handbook* to ascertain the level of continuing achievement required of them by the faculty of their college.

An I, or X (Incomplete), grade is used to show that the student has not completed the course requirements.

An official University grade report is mailed to each student at the end of each quarter.

Transcripts

Applications for transcripts of record are made at the Registrar's Office (120 HA). A charge of \$2.00 is made for each transcript request.

Dean's List

An Honors or Dean's List is issued at the end of each quarter. The list contains the names of students who have a 3.0 weighted average or higher, with no I grade or grade below C. Students who are on any form of pro-

bation, enrolled in courses on a Pass-Fail basis (except where there is no alternative or where required by the program), or who are not carrying full loads as determined by their basic college will not be eligible.

Dean's List with Honor	3.0–3.49
Dean's List with High Honor	3.50–3.74
Dean's List with Highest Honor	3.75–4.0

Reports on Scholastic Standing

Reports for all students are issued at the end of each grading period. Questions about grades are to be discussed with the student's faculty adviser.

At the end of the academic year, juniors will receive, in addition to their term reports, a complete cumulative copy of their permanent records so that they may be aware of any discrepancies in their records and, if so, should contact the dean of their college.

Students are constantly encouraged to maintain an acceptable quality of college work. Parents and students are always welcomed by the college officers and faculty advisers for conference upon such matters.

Family Educational Rights and Privacy Act

In accordance with the Family Educational Rights and Privacy Act of 1974, Northeastern University permits its students to inspect their records whenever appropriate and to challenge specific parts of them when they feel it necessary to do so. Specific details of the law as it applies to Northeastern are printed in the *Student Handbook*, which is distributed annually at registrations.

It is the policy of Northeastern University to deal with the student in all academic and administrative matters. If parents require any information regarding the progress of their son or daughter, they may contact the Dean of Students' Office.

General Conduct

It is assumed that students come to the University for a serious purpose and that they will conform to such regulations as may from time to time be made. The University community expects each student to respect the rights and privileges of others and to adhere to acceptable standards of personal conduct. Students should exercise their freedom with maturity and responsibility. They are expected to obey University regulations and follow the instructions of and pay due respect to University officials. Conduct inconsistent with the general order of the University may result in disciplinary action. Damage to any building or to any of the furniture, apparatus, or other property of the University will be charged to the student or students known to be immediately involved.

The University seeks to administer discipline with a high standard of integrity and a scrupulous regard for truth. Any student's attempt to present any work not his or her own or to pass any examination by improper means is regarded as a most serious offense and renders the offender liable to disciplinary action. Aiding and abetting a student in any dishonesty is also held to be a grave breach of discipline.

Attendance

Students are expected to attend all meetings of their classes. Absence from regularly scheduled classes may seriously affect the standing of the

student and result in the University's dropping the subject or subjects from his or her schedule. Laboratory work can be made up only during hours of regularly scheduled instruction.

Emergency Closing of the University

Students, faculty, and staff are notified by radio when it becomes necessary to cancel classes because of extremely inclement weather. Radio stations WRKO, WBZ, WEEI, WHDH, WCOZ-FM, WLYN-FM, WKOX, WVBF-FM, WHAV, WLLH, and WJDA will announce the University's decision to close.

ROTC

Military Officers Education Program

Army

Richard A. James, LTC, U.S.A.; M.A., *Professor and Chairman*

General Objectives

The Department of Military Science administers Northeastern's ROTC Program. Regarded by the University as an integral part of its education program, ROTC is available on a voluntary basis to all full-time students. The program's mission is to develop officers—leaders. It offers courses of instruction designed to lead to a commission as an Army second lieutenant.

The ROTC staff consists of active Army officers and NCO's, assigned by the Department of the Army.

Courses of Study

The program consists of the Basic Course (freshman and sophomore years) and the Advanced Course (middles, junior, and senior years) and complements the co-op program by tailoring the courses to the student's schedule.

Enrollment in the Basic Course is voluntary and is open to all students of the Basic Colleges who qualify. Students do not incur a military obligation if they withdraw from the Basic Course.

The Advanced Course is open to all qualified students who meet these prerequisites: (1) completion of Basic Course or approved equivalent, or prior honorable military service; (2) physical aptitude and medical requirements; and (3) age requirements. Students accepted for the Advanced Course execute a written contract that obligates the newly commissioned second lieutenant to a period of military service. Advanced Course students receive a \$100/month stipend (\$2,000 total) as well as special pay for attending a summer camp.

ROTC Scholarships

The Army ROTC scholarship provides full tuition, fees, textbooks, and \$100 per month to the recipient. Scholarships are available in varying lengths

and cover the cadet's remaining academic years. *Non-cadets* may apply for scholarships covering their last four or three academic years. These awards are not related to financial need, and a student's earnings during cooperative work periods do not reduce scholarship payments.

Veterans and Transfer Students

Honorably discharged veterans (enlisted) are a vital part of our cadet corps and will receive special consideration for ROTC entry.

Transfer students, whether or not previously enrolled in ROTC, are also welcome to join our program. They should contact the Department of Military Science concerning their options for program entry.

Uniforms and Equipment

Uniforms are issued without cost to ROTC cadets. A \$25 deposit is required to ensure the return of the loaned property in good condition. Loss or damage to Army equipment, exceeding the deposit, will be charged to the student.

Academic Credits

Regulations of the individual Basic Colleges prevail for ROTC graduation credit. However, students may petition individually their academic department for acceptance of certain courses for graduation credit.

Air Force

Richard Hamilton, M.S., LTC, USAF,
Director of the Office of Aerospace Studies, B.U.

General Objectives

Air Force ROTC is available to Northeastern students through the Office of Aerospace Studies at Boston University. Students will attend Aerospace Studies classes on the B.U. campus but are not required to enroll at B.U. The program is similar in mission, scope, and benefits offered to Northeastern's on-campus Army program, except that students have the opportunity to prepare for an Air Force commission. To be eligible, students must be U.S. citizens, must pass an Air Force physical examination, and must be enrolled full time at Northeastern.

Application Procedures

When arriving on campus, eligible freshmen may sign up for the program by selecting Air Force subjects (91.201 and 91.202). Interested students should contact the Air Force ROTC Office when notified of admission to the University; or they can make application by a personal visit to the Office of Aerospace Studies, 156 Bay State Road, Boston, MA., or by calling 617-353-4705.

Division of Cooperative Education

Cooperative education is a dynamic system of education based on the principle that students develop most effectively through an educational program that provides for periodic exposure to the world that exists beyond the campus. Through controlled and structured experiences, students bring an enrichment to the classroom that enhances their total development. The essential factors are that satisfactory participation in cooperative education is considered a degree requirement and that the educational institution assumes the responsibility for integrating these experiences into the education process. It is called "cooperative education" because it is dependent upon the cooperation of outside agencies, educators, and students to produce an integrated program.

Studies have shown that the reinforcement of classroom learning by job responsibilities increases a student's motivation and self-confidence. Greater interest in academic work develops when the student sees the relation between job responsibilities and principles studied on campus. These experiences can also help to instill a sense of identity and worth as the student functions as an adult in an adult world.

Northeastern's commitment to cooperative education is illustrated by the diverse but related activities of the five departments within the Division of Cooperative Education. Each department makes a unique contribution to the development of cooperative education and the enhancement of its effect on Northeastern's students.

The Department of Cooperative Education

Paul M. Pratt, M.Ed., *Dean*

Richard E. Sprague, M.B.A., M.Ed., C.A.G.S., *Assistant Dean*

Professors

Nancy J. Caruso, M.Ed.

Charles F. Field, M.Ed.

George K. Howe, M.Ed.

Robert W. Miller, M.Ed.

Homer C. Littlefield, B.S.

Judith A. Moll, M.S.

Anthony R. Rotondi, M.Ed.

Willie Smith, Jr., M.Ed.

Roderic W. Sommers, M.Ed.

Hugh J. Talbot, M.P.A.

Robert E. Vozzella, M.A.

Associate Professors

Ernest V. Barrasso, M.Ed.

Boreslaw P. Berestecsky, M.Ed.

Betsey W. Blackmer, M.Ed.

Richard L. Canale, M.Ed.,
C.A.G.S.

Elizabeth A. Chilvers, M.Ed.

Mark I. Conley, Jr., M.S.,
C.A.G.S.

Robert D. Deforge, M.Ed.

Rosemarie DiMarco, M.S.

Philip W. Dunphy, M.Ed.

Mary R. Flynn, M.Ed.

John D. Hammond, M.P.A.

Kenneth R. Hancock, Jr., B.S.

Stephen M. Kane, Ed.D.

Gerard J. Lavoie, M.P.A.

Assistant Professors

Michael A. Ablove, M.Ed.

Donald L. Eastridge, M.Div.

Kathleen L. Finn, M.Ed.

John C. Mulhall, M.S.

William A. Sloane, M.B.A.

Robert T. Tillman, M.Ed.

Instructors

Robert S. Brown, M.B.A.

Jean F. Egan, M.Ed.

Veronica M. Leona, M.Ed.

Patrick F. Todd, B.S.

The largest department in the Division, the Department of Cooperative Education is responsible for the administration of the cooperative education program for undergraduate and graduate students at Northeastern. Details on the specifics of operation are explained on page 00 of this catalog and in a booklet entitled *Co-opportunities*, which is available on request from the Department of Admissions.

Life/Career Planning Program

Jane S. Schachter, M.Ed., *Director*

The fundamental mission of the Life/Career Planning Program is to provide students with access to services that will assist them in making appropriate career decisions. Courses and workshops emphasize self-exploration, career exploration, decision making, goal setting, job-finding skills, and co-op as a tool for career planning. Career planning courses are available to all undergraduates on an elective basis, and in some cases are required by their major departments. Throughout the year special workshops and seminars are conducted in response to the ever-changing career needs of the student body.

International Cooperative Education

Richard E. Sprague, M.B.A., M.Ed., C.A.G.S., *Director*

Northeastern University carries its unique program in cooperative education to the international scene by offering undergraduate and graduate students the opportunity to be placed abroad for their cooperative work and by operating Exchange Co-op programs with a number of foreign institutions. Placements are available in the United Kingdom, Germany, Sweden, Ireland, France, and Israel for students whose linguistic, academic, and professional experience makes them competent candidates for positions abroad.

The Center for Cooperative Education

Paul E. Dubé, M.A., M.Ed., *Director*

Educational institutions and other organizations exploring, developing, expanding, or improving programs in cooperative education contact the Center for a variety of services. All facets of the establishment, operation, and expansion of programs may be explored with professional consultants familiar with all aspects of cooperative education. The Center will conduct evaluation/cooperative education programs for both educational institutions and employers.

Intensive, short-term training workshops for both new and experienced coordinators of cooperative programs and the four-week Summer Institute in Cooperative Education offering eight quarter hours of graduate credit are among the services offered by the Center.

The Center for Secondary School Work Experience Education

Ellen N. Winer, Ed.D., *Director*

A full complement of consulting, training, and research services is available to schools and other educational facilities, community groups, and employers interested in implementing or expanding work experience programs at the secondary school level. These services are designed to assist school faculty who have primary responsibility for initiating and conducting work experience programs in planning, implementing, and evaluating their efforts.

The Cooperative Education Research Center

James W. Wilson, Ph.D., *Asa Smalldige Knowles Professor of Cooperative Education and Director*

Various aspects of the effectiveness of cooperative education are continuously investigated by the staff of the Research Center, and the results are published and disseminated among the cooperative education community. The purpose of these studies is to aid practitioners in the field so that they can be of greater service to students enrolled in cooperative education programs. As a part of its research activity, the Research Center has established an information clearinghouse to store information about cooperative education and make it available to interested people throughout the country. A library of cooperative education and related material is maintained for research and consulting purposes.

Department of Career Development and Placement

Sidney F. Austin, M.Ed., *Director*

The Department of Career Development and Placement offers a wide range of counseling and placement assistance to all seniors and alumni of Northeastern University seeking employment; to undergraduates seeking admission to graduate schools, including medicine and law; and to students interested in participating in non-paid, part-time internships in private or public non-profit agencies for which they may receive academic credit.

Through this department, representatives of hundreds of employers are scheduled to visit the campus each year to interview seniors and graduate students for full-time employment after graduation. A job bank of currently available positions is maintained for alumni who are seeking new opportunities for which they may be qualified. Credential service is provided for students and alumni seeking positions in the field of education. Regularly scheduled seminars are conducted for seniors and alumni on career development, job-finding techniques, resume preparation, and effective interviewing. Individual career counseling is available for seniors and alumni of all University programs.

University Libraries

Roland H. Moody, A.B., B.L.S., *Director*

"All that mankind has done, thought, gained, or been: it is lying as in magic preservation in the pages of books."—Thomas Carlyle

The University libraries endeavor to provide the informational and bibliographic services required by students and scholars working in subject fields covered by University programs of instruction and research. In all, the collections include more than 450,000 cataloged volumes. In addition, the library holds in excess of 500,000 titles on microform, including the comprehensive *Libraries of American Civilization and English Literature*.

The microform collection includes microprint, microfilm, and microfiche with appropriate equipment for reading.

Periodicals (approximately 3,800 titles received currently), government documents relevant to the University, technical reports, pamphlets, and recordings (more than 5,000) enhance the collections. There are duplicating facilities available in all libraries.

Libraries

The Dodge Library houses the main collections, the main bibliographic resources for the library system, the central processing units, and library administration. Its seven air-conditioned reading rooms, many recently renovated, include the Richardson Room; the Reference Room, with a collection in excess of 20,000 volumes including almanacs, atlases, bibliographies, biographical dictionaries, information on business services, dictionaries, directories, encyclopedias, gazetteers, handbooks and manuals, indexes and abstracts, and technical reports; the Periodical Room; the Documents Room; the Microform Room; the Reserve Book Room, with a 20,000-volume collection; and the Fine Arts Room.

Additional libraries include the divisional libraries of Physics/Electrical Engineering, Mathematics/Psychology, and the Hurtig Hall Library (Chemistry, Biology, and Pharmacy)—all graduate-level collections; the Boston-Bouvé College of Human Development Professions Library; and the School of Law Library. The Suburban Campus at Burlington has its own library, and there are also collections at the Marine Science Institute in Nahant and at the Center for Management Development in Andover.

Services and Hours

A handbook, A-V aids, bibliographic guides, and lectures introduce students to methods of utilizing the resources of the collections, and a dedicated staff is prepared to help users of the various libraries. All members of the University, and others at the discretion of the Librarian, have the use of reference books, government documents, card catalogs, and service. During term time, most libraries are open 7:45 a.m. to 10:00 p.m., Monday through Thursday; 7:45 a.m. to 7:30 p.m. on Friday; 1:00 p.m. to 5:00 p.m., Saturday and Sunday, with certain areas in the Dodge Library open later hours in the evening.

New England Library Information Network

The Northeastern libraries have computerized many operations internally and, in addition, hold membership in the New England Library Information Network. NELINET has been established for the purpose of developing and operating major library support services. It is a network of libraries

devoted to sharing financial, human, and material resources to reduce cost and redundancy and to expand the timeliness and variety of services available.

Office of Learning Resources

Mina B. Ghattas, Ph.D., *Director*

The Office of Learning Resources (OLR) provides University faculty, students, and staff with a full spectrum of instructional support services, media, and learning facilities.

Learning Resources Center

The Learning Resources Center furnishes students with tutoring services and individualized study facilities in support of regular course requirements as well as supplemental instruction in many subject areas. Study materials here are presented in varied interactive formats, including programmed texts, audiotapes, videotapes, sound filmstrips or slides, computer-assisted lessons and exercises, and related workbooks. One of the major LRC facilities is its language laboratory. A listening lounge, equipped with a stereophonic sound system, supplies a large selection of classical and popular prerecorded music. A number of terminals that allow users to access the University's central computer are located in the LRC. A new adjunct facility, the Center for Assessment, Tutoring, and Enrichment Resources (C.A.T.E.R.), which supplements certain mathematics courses through a combination of computer-assisted instruction, video technology, and tutoring, is also part of the LRC complex. Students may use LRC facilities independently or to complete class assignments at no cost during day, evening, and weekend hours.

Media Production Services

Media Production Services coordinates and provides professional consultation and specialized services in graphics, photography, audio recording, television, and multi-media production for various University needs. In a media production laboratory, facilities and assistance are provided for students, faculty, and staff to produce their own materials such as charts, graphs, illustrations, layouts, overhead transparencies, and photographic slides. Training workshops in media production and utilization may be arranged for organized groups.

Campus Media Services

Campus Media Services makes available all types of audiovisual and video equipment and instructional materials for the support of classroom instruction on a prescheduled basis. Items include film, filmstrip, slide, opaque and overhead projectors, audio and videotape recorders, TV cameras and monitors, portable public address systems, telelecture equipment, record players, and projection screens. This section also distributes instructional materials from the NU-owned collection, such as 16-mm films, videotapes, filmstrips, film loops, slides, and audio cassettes. Certain equipment is reserved for student use, and students may also borrow instructional materials with faculty approval. A catalog of all instructional materials is available at no charge.

Instructional Materials Services

The Instructional Materials Services acquires and maintains the collection of NU-owned instructional materials and also provides a rental service for

16-mm films and videotapes obtained from outside sources. Faculty who would like to evaluate instructional materials before purchase make use of its preview service. Preview facilities for all types of materials are available for small-group viewing by members of the University community. An up-to-date collection of research reports, periodicals, instructional materials, catalogs, and other reference volumes on all aspects of instructional media and technology is similarly accessible.

Instructional Development Services

The Instructional Development Services assists individual faculty with specifying instructional goals, reviewing related literature and materials, examining alternative teaching strategies, producing learning materials, and evaluating course effectiveness. Its training in presentation and teaching techniques complements its basic function of developing instructional units and courses.

University Health Services

Lane Health Center

Job E. Fuchs, M.D., *Director*

A comprehensive program of medical care is provided to all full-time registered students in the Basic Colleges, both graduate and undergraduate. The University maintains a Health Services Clinic in the Forsyth Building, Room 135, which is open for emergencies at all times and is equipped to deal promptly with any medical condition that may arise. All entering students must file a record of physical examination with Health Services. Failure to fulfill this requirement can delay registration and result in a penalty fee and an additional fee for a physical examination. Regular clinic hours for the student body are held by staff physicians from 9:00 a.m. to 4:30 p.m., Monday through Friday. Health Services can be reached at all times by telephoning 437-2772.

Specialty clinics in surgery, orthopedic surgery, gynecology, and fertility control and planning are scheduled at specified hours. Please check times with the Health Services office. Pregnancy testing and venereal disease diagnosis and treatment services are always available during clinic hours. Allergy testing and treatment for students with allergic problems are done at the Lane Health Center at no cost except for a nominal fee for the cost of the extracts. Allergic desensitization injections using extract provided by the student's own physician will be given at no cost provided the extract is received in good condition, properly labeled, and with a dosage schedule. Consultation with the various medical and surgical specialists who are not physically present in the clinic will be arranged when deemed necessary by a Health Services physician. The cost of the first visit will be borne by the Health Services.

Special X-ray and laboratory procedures that are unavailable in the Health Services but are deemed necessary by a staff physician will be provided. A full spectrum of mental health services is available. A mental health specialist is present daily, and students are urged to use this service even for minor emotional upsets.

All full-time graduate and undergraduate students are covered by a special Blue Cross and Blue Shield policy, which remains in effect continuously from the day of initial registration until the first of the month following withdrawal, dismissal, or graduation. Married students are urged to go to the Finance Office (249 Richards Hall) to purchase supplementary coverage for dependents.

An infirmary is also maintained in the Forsyth Building for the care of students living in University dormitories and apartment houses. The required Infirmary fee entitles students to twenty days' care in the infirmary at no additional charge.

Students are urged to come to the clinic *during regular clinic hours* in order to take advantage of all of our facilities.

The Reading Clinic

A facility of the Curriculum and Instruction Department, Boston-Bouvé College of Human Development Professions

Melvin Howards, Ph.D., *Director*

In full operation since the spring of 1970, the Northeastern University Reading Clinic serves approximately 400 persons each year, making it one of the largest reading clinics in the country. The clinic offers a wide range of diagnostic and corrective services for all types of reading and language problems to persons of all ages, including Northeastern students.

Space The clinic occupies a suite of 14 private rooms at 1 Holmes Hall, Boston. As the need arises, other instructional spaces are made available. Videotape recording space for taping and viewing exists. Audiotape recorders and various other media equipment are available at the Campus Media Services to assist the clinic staff in improving the quality of instruction.

Resources The Northeastern University faculty have skills needed for a wide range of testing: WAIS, WISC, Binet, ITPA, Bender, and all standardized tests.

Procedure If you need or want help in learning how to read or write, no matter what your age or educational experience, call the clinic at 617-437-3305 or 3306 and make an appointment for initial testing. After the test, you may be assigned to a place in the clinic when there are openings.

Speed Reading The Reading Clinic offers a special noncredit course in speed reading designed to improve skills in rapid, study, critical, and pleasure reading. Whether the desire is to increase speed, to improve understanding, or both students have the opportunity to learn to apply tested reading and study techniques that improve accuracy and recall in all normal reading assignments.

The course is offered during the fall, winter, spring and summer quarters. Students may register during the first week of each quarter. Classes meet one evening a week from 4:00-6:30 or 7:00-9:30.

A discount tuition rate is available for Northeastern University staff, students, and alumni, and all materials are usually supplied at no expense.

The Counseling and Testing Center

Philip W. Pendleton, Ph.D., *Director*

The purpose of the Counseling and Testing Center is to offer assistance to students in a wide variety of areas such as career planning, personal and life adjustment problems, study skills, anxiety, choice of major, and interpersonal relationships. At the Center, students are encouraged to discuss their concerns with a counselor, following which they may decide to continue individual counseling, take psychological tests to increase their knowledge of themselves, join a group of students with whom they can share concerns, or make use of the Center's extensive file of information about careers and services.

The Center's services are available, without charge, to all students in the Basic Colleges. Students can arrange an appointment by telephoning 617-437-2142 or by visiting the Center in Room 302 Ell. Vocational counseling services are also available on a fee basis to high school students and adults.

The counseling services of the Counseling and Testing Center are approved by the International Association of Counseling Services.

International Student Information

The University welcomes qualified students from foreign lands who are adequately prepared to benefit from the educational, cultural, and social opportunities it has to offer. Currently, over 2,100 international students from ninety-five different countries attend Northeastern.

Northeastern University is authorized under federal law to enroll non-immigrant aliens as full-time students in degree-granting programs of its basic undergraduate colleges and graduate schools. Part-time and special students are not included in this authorization.

Because of problems of adjustment experienced by many students from foreign countries, the University makes a special effort to evaluate carefully the educational and financial qualifications of prospective students. The University has an international student adviser and staff to administer to the special needs of these students.

University admissions policies for international students are found on pages 199 to 200.

The University does not award financial aid to international students at the undergraduate level.

The International Student Office

Sally M. Heym, B.A., *Director*

The International Student Office has been established to assist international students in all matters relating to their legal status as foreign nationals in the United States. Through a variety of publications, counseling services, and social and cultural activities, the International Student Office seeks to bring about a meaningful stay for international students at Northeastern and to provide opportunities for Americans to meet them. Specific activities include quarterly orientation programs, cultural evenings, ski trips, and an International Day. The ISO also publishes a quarterly newsletter.



International students who have never attended an institution of higher learning or who have already attended college or a university and want to transfer to Northeastern should write to the Department of Admissions for information and applications. Applicants who have already received a degree or diploma from a university or college and seek information concerning graduate schools at Northeastern should write to the specific graduate school in which they are interested in matriculating.

English Language Center

Paul C. Krueger, C.A.G.S., *Director*

The English Language Center provides an important resource for international students at Northeastern. Its goal is to ensure that students who speak English as a second language are proficient enough to carry on full-time studies in a degree program without language-related problems. The Center administers the Intensive English Program, which offers three levels of intensive, noncredit courses in English as a second language—beginning, intermediate, and advanced. Intensive English classes are open to undergraduate and graduate students, as well as to students who come to Northeastern to study English only. Those students also admitted to a degree program in the University may take, with the approval of the Director of the English Language Center and the chairman of the department concerned, one or two courses for credit while studying Intensive English at the advanced level.

The Intensive English Program offers a minimum of twenty-two hours of instruction per week, as well as a number of special services. The weekly program includes classes in English structure and in reading and study skills, small group tutorials, practice in a language laboratory and in a writing laboratory, and help from a pronunciation specialist as needed. English Language Center staff work closely with staff from the International Students Office, as well as from other offices in Student Affairs, the academic departments, and other University services.

In addition to serving students, the English Language Center provides advice and consultation to the Northeastern community at large. Center staff are available to answer questions from teachers, administrators, and students and are able to design special programs for special needs at short notice.

For more information about the English Language Center call 617-437-2455.

Academic Computer Services

Paul M. Kalaghan, Ph.D., *Director*

During the last two decades, the computer has evolved dramatically from a research-oriented problem-solving tool to the familiar device employed throughout our automotive, banking, merchandising, manufacturing, energy, communications, health-care, education, and entertainment industries. At Northeastern, the computer facilities reflect the University's recognition of the essential role played by this new technology. Its two computer groups, Academic Computer Services and Administrative Computer Services, serve faculty, students, and administration.

Academic Computer Services, located in the basement of Richards Hall (617-437-2335), supports the research, teaching, and learning activities of faculty, research personnel, and graduate and undergraduate students. The computational capability of this facility is supplied by two Digital Equipment Corporation VAX-11/780 systems. Each VAX-11/780 is a state-of-the-art, 32-bit, virtual-memory machine optimized for interactive computing. Both students and faculty access these systems in a time-sharing environment through video and hard-copy terminals arranged in student and in faculty clusters; graphics devices and word processing are also available. The primary languages supported are FORTRAN, COBOL, BASIC, PASCAL, and VAX Macro Assembler. Numerous software libraries are available for numerical, statistical, and financial applications. Programming assistance is available for both faculty and students in order to promote effective utilization of all facilities.

Office of Services for the Handicapped

Ruth K. Bork, M.Ed., *Director*

Very often, the degree of physical accessibility and types of available support services play an important part in a disabled student's selection of a college. An examination of Northeastern University's campus map shows the buildings to be located within relatively close proximity to one another. Nearly all buildings have elevators that are open to use by all. A special advantage at Northeastern is the existence of a tunnel system, constructed prior to 1965, that links all buildings; in the harsh New England winters and during inclement weather, this proves to be a welcome feature to all.

Any student who has a disability-related special need—no matter how small or individual—can receive ready support services from the Office of Services for the Handicapped (OSH). Frequently, students are uncertain about how they may be aided by this office, and in these situations a discussion of possible alternatives can be quite helpful. OSH provides a wide range of support services to eliminate the competitive disadvantages that a disability may create. Services are individually tailored to meet the needs of each student.

If you have a disability, you are strongly urged to meet with the staff in OSH early on in your consideration of Northeastern. Together, you can discuss the types of service that would best meet your needs, and you will have an opportunity to see the campus firsthand. If a visit is not possible, contact the OSH Director by phone or by mail to avoid the unnecessary delays and confusion that may arise with last-minute adjustments; telephone: 617-437-2675 (voice) or 617-437-2730 (TTY).

The following types of assistance are available from the Office of Services for the Handicapped:

Orientation—Tailored to the needs of specific disability groups, orientation utilizes tactile maps for vision-impaired students, interpreters for hearing-impaired students, and accessible routes of travel for mobility-impaired students.

Registration and Preregistration—Assistance to help ensure class accessibility and course adaptation.

Counseling—personal, academic, and referral services.

Housing—Necessary modification in residence halls.

For the Visually Impaired Students—OSH assists in securing taped and braille textbooks and materials; readers; campus orientation; tactile maps;



and auxiliary aids such as brail, Visualtek reader, raised-line drawing kits, large-print typewriter, talking-book machine, magnifiers, talking calculators, and variable-speed tape recorders.

For the Hearing-Impaired Student—OSH offers services including oral and sign language interpreters; notetakers; TTY; audiometric testing; hearing-aid evaluation, fitting, and orientation; instruction in sign language and speech reading; speech therapy.

For the Wheelchair User/Mobility-Impaired Student—OSH offers information on appropriate routes of travel, assistance in relocating classes, adaptive physical education, and physical therapy.

General Assistance Services—Includes scribes; advocacy liaison with instructors and other University staff; HP parking; corrective tutoring in English writing, reading, and language problems; special examination situations.

Information Clearinghouse—Offers articles, periodicals, books, and other literature for, about, and by disabled individuals.

The Office of Services for the Handicapped is also the gathering place for the Disabled Student Organization of Northeastern University, which works cooperatively with OSH to plan programs and improve accessibility of services for handicapped persons at Northeastern.

Office of Community Development

Gregory T. Ricks, M.C.P., *Director*

The Office of Community Development, located at 334 Massachusetts Avenue, is the University's major contact with the Boston community. Agencies from all over the city and particularly the Fenway, Roxbury, Dorchester-Mattapan, Mission Hill, and the South End come to this office for technical assistance and permission to use University facilities. Recent projects include hosting a college interview fair for 2,000 low-income and minority high school students, developing and administering a new course on tenant organizing for N.U. students and tenants of Mission Hill Housing Project, and publicizing tuition waivers for the elderly.

Because of the relationships developed from these programs, the Office is able to refer faculty members to key personnel at many community agencies who might be contacted for community service/research projects, to help plan logistics of transportation and communication, and to develop joint funding proposals with community agencies. For further information about these services call 617-437-3381.

Office of Parents' Services

Virginia A. Stephanos, M.S.Ed., *Director*

The Office of Parents' Services provides a central counseling and resources operation for parents of undergraduate and graduate students at Northeastern, facilitating the resolution of problems and exchange of information. The Office maintains contact with the various academic deans' offices, with Cooperative Education, Dean of Students, Financial Aid, Housing, Registrar's Office, Bursar, and other administrative departments that may relate to parents' concerns. In addition, the Office also offers parents social and cultural programs to promote a better understanding of Northeastern's diversified academic and administrative departments.

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Academic Calendar 1981-1982

September 1981

7	Monday	LABOR DAY. University closed.
8-11	Tuesday-Friday	Final Examinations for Basic Colleges.
14-26	Monday-Saturday	Division A vacation.
17	Thursday	FALL COMMENCEMENT.
21	Monday	Freshman Orientation Boston Class 1986
23	Wednesday	Transfer Orientation
25	Friday	Burlington Orientation
28	Monday	Beginning of 1981-1982 academic year. Upperclass registration for Divisions A and C. No Basic Colleges classes today.

October 1981

12	Monday	COLUMBUS DAY. University closed.
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November 1981

11	Wednesday	VETERANS' DAY. University closed.
26-28	Thursday-Saturday	THANKSGIVING DAY recess.

December 1981

14-18	Monday-Friday	Final Examinations for Basic Colleges.
21-Jan. 3	Monday-Sunday	CHRISTMAS vacation.

January 1982

1	Friday	NEW YEAR'S DAY. University closed.
4	Monday	BASIC COLLEGES ONLY. Orientation of all <i>newly</i> admitted students in Basic Colleges. 9 a.m. upperclass registration Divisions B and C. 1 p.m. registration for Quarter 2, Class 1986. Start of UC, LC, Graduate Winter Quarter.
15	Friday	MARTIN LUTHER KING, JR.'S BIRTHDAY. University closed.

February 1982

15	Monday	WASHINGTON'S BIRTHDAY. University closed.
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March 1982

22-26	Monday-Friday	Final Examinations for Basic Colleges.
29-April 3	Monday-Saturday	Vacation period for all students in all colleges and schools (Division B vacation).

April 1982

5	Monday	Registration for Divisions A and C and Division B seniors. Registration for freshmen (Quarter Three) at Boston Campus, Burlington Campus, and January freshmen (Quarter Two). Beginning of Spring Quarter. Beginning of Division B work period. No Basic Colleges classes today.
19	Monday	PATRIOTS' DAY. University closed.

May 1982

31	Monday	MEMORIAL DAY. University closed.
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June 1982

14-18	Monday-Friday	Final Examinations for Basic Colleges.
20	Sunday	COMMENCEMENT.
21-26	Monday-Saturday	Division A vacation.
28	Monday	Registration for Divisions B and D and January freshmen (Quarter Three). Beginning of Summer Quarter. Beginning of Division A work period. No Basic Colleges classes today.

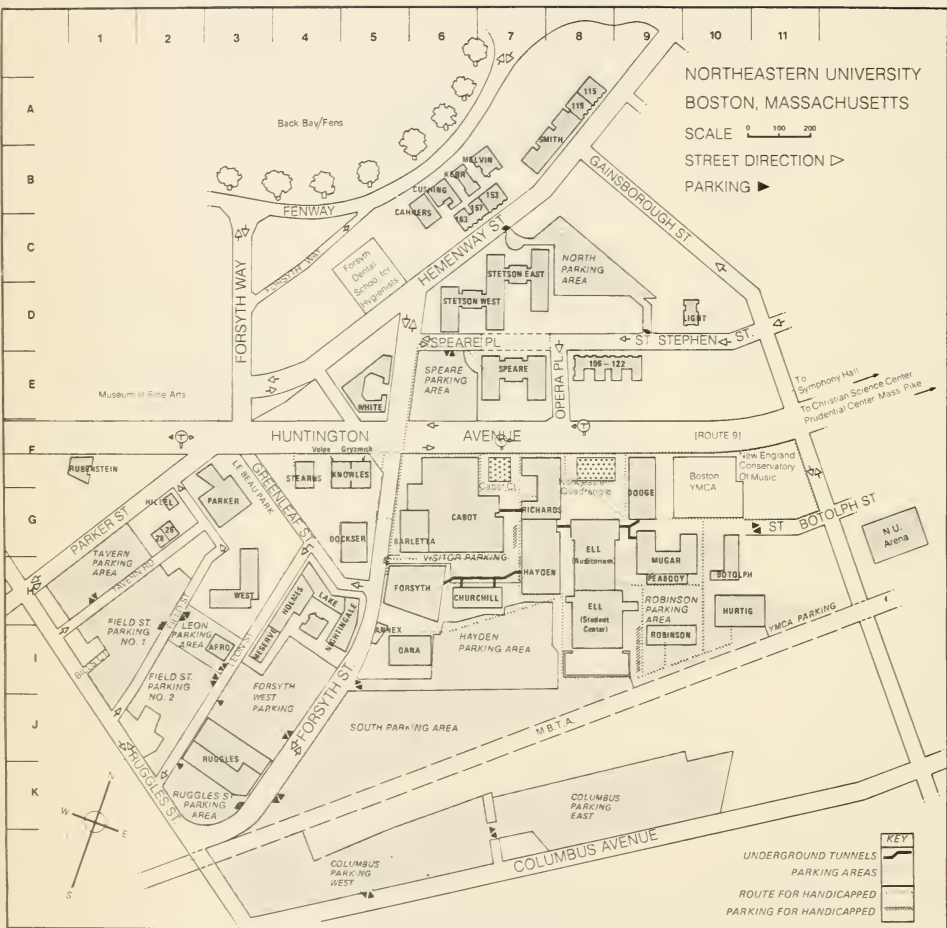
July 1982

5	Monday	INDEPENDENCE DAY. University closed.
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September 1982

6	Monday	LABOR DAY. University closed.
7-10	Tuesday-Friday	Final Examinations for Basic Colleges.
16	Thursday	FALL COMMENCEMENT.
13-25	Monday-Saturday	Division B vacation.
27	Monday	Beginning of 1982-1983 academic year. Upperclass registration for Divisions B and C. Boston and Burlington freshmen complete their registration. No Basic Colleges classes today.

Calendar changes may be made. The University community will be notified if such changes are necessary.



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Gifts and Bequests to Northeastern University

Northeastern University welcomes gifts and bequests to further its educational purposes. It is recommended that those contemplating gifts or bequests confer with the President of the University regarding the needs of the University.

A member of Northeastern University's staff will be happy to consult with those considering a gift or bequest. Planned gifts to the University can often be combined with personal financial goals to produce maximum financial security, as well as significant tax savings for an individual or family.

The legal name of the University is "Northeastern University." In making a gift or bequest, it is recommended the following wording be used: "Northeastern University, an educational institution incorporated under the laws of Massachusetts and located in Boston, Massachusetts."

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Chuck Savadelis
Director of Photography
Office of Public Information

Northeastern University Bulletin

University College
Part-Time Programs
1981-1982

August Issue

part-time day and evening
undergraduate programs in:

arts and sciences
business administration
health professions
law enforcement

Northeastern University
360 Huntington Avenue
Boston, Massachusetts 02115
617-437-2400

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NEW ENGLAND
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OF SCHOOLS
AND COLLEGES
ACCREDITED MEMBERS

The Northeastern University catalog contains *current information* regarding the University calendar, admissions, degree requirements, fees, and regulations, and such information is not intended to be and should not be relied upon as a statement of the University's contractual undertakings.

Northeastern University reserves the right in its sole judgment to promulgate and change rules and regulations and to make changes of any nature in its program, calendar, admissions policies, procedures and standards, degree requirements, fees, and academic schedule whenever it is deemed necessary or desirable, including, without limitation, changes in course content, the rescheduling of classes, cancelling of scheduled classes and other academic activities, and requiring or affording alternatives for scheduled classes or other academic activities, in any such case giving such notice as is reasonably practicable under the circumstances.

We at Northeastern will do our best to make available to you the finest education we can provide, the most stimulating atmosphere in which to learn, and the most congenial conditions under which you may enjoy the learning experience. But the quality and the rate of progress of your academic career are in large measure dependent upon your own abilities, commitment, and effort. You will be a full participant in an educational partnership. We will, and indeed can only make the opportunities available to you; it is up to you to take advantage of them.

This is equally true with your career upon graduation. We cannot guarantee that you will obtain any particular job; that will depend upon your own skills, achievement, presentation, and other factors such as market conditions at that time. Similarly, in many professions and occupations there are increasing requirements imposed by Federal and state statutes and regulatory agencies for certification or entry into a particular field. These may change during the period of time when you are at Northeastern and they may vary from state to state. While we will be ready to help you find out about these requirements and changes, it is your responsibility to initiate the inquiry because we cannot know what your expectations and understandings are unless you tell us.

In brief, we are here to offer you educational opportunities and choices and to assist you in finding the direction in which you want to steer your educational experience. But you are a partner in this

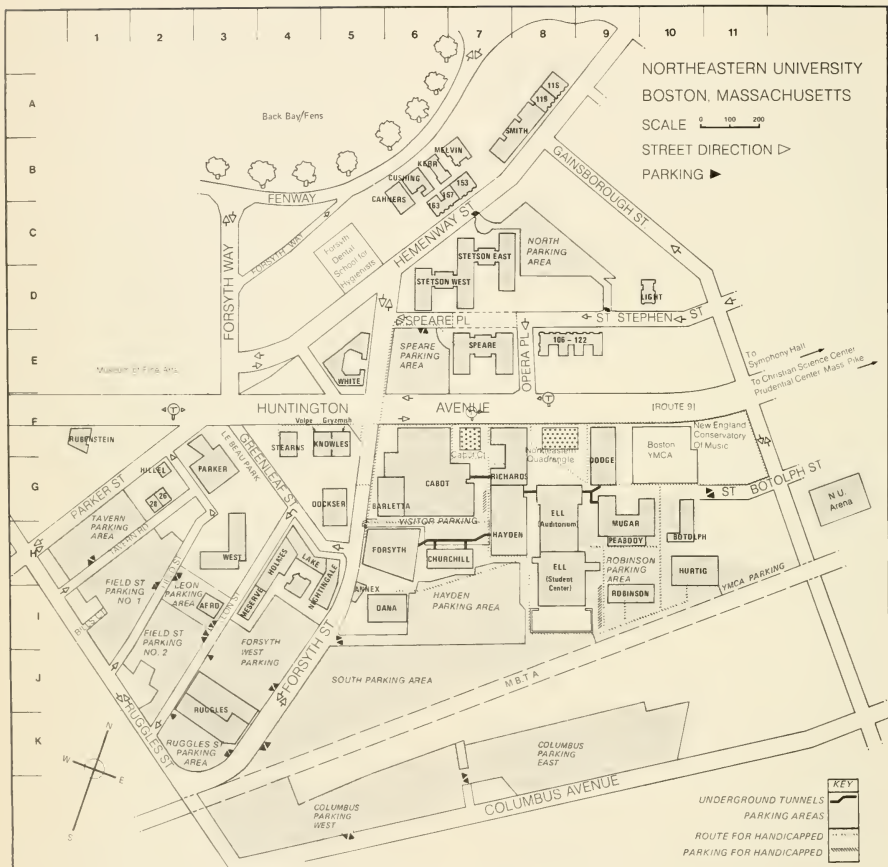
venture with an obligation and responsibility to yourself.

Delivery of Services The University assumes no liability, and hereby expressly negates the same, for failure to provide or delay in providing educational or related services or facilities or for any other failure or delay in performance arising out of or due to causes beyond the reasonable control of the University, which causes include, without limitation, power failure, fire, strikes by University employees or others, damage by the elements, and acts of public authorities. The University will, however, exert reasonable efforts, when in its judgment it is appropriate to do so, to provide comparable or substantially equivalent services, facilities, or performance, but its inability or failure to do so shall not subject it to liability.

Equal Opportunity Policy Northeastern University is committed to providing equal opportunity for all. In matters involving admission, registration, and official relationships with students—including evaluation of academic performance—the University insists on a policy of nondiscrimination. Northeastern is also an equal opportunity employer. It is institutional policy that there shall be no discrimination against any employee or applicant for employment because of race, color, religion, sex, age, national origin, or on the basis of being a handicapped but otherwise qualified individual. In addition, Northeastern takes affirmative action in recruitment of students and employees. Inquiries concerning our equal opportunity policies may be referred to the University Affirmative Action Officer, Room 175, Richards Hall, telephone: 617-437-2139 or 2133. Northeastern's efforts to comply with the Title IX Education Amendments of 1972 and Section 504 of The Rehabilitation Act of 1973 are coordinated by the Dean and the Director of Affirmative Action.

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University College Offices

Office for General Information	437-2400	102 Churchill Hall
Office of the Registrar	437-2314	120 Hayden Hall
Burlington Campus	272-5500	
Burlington (High School)	273-1870	
Belmont Campus	484-4418	
Brockton Campus	584-2444	
Framingham Campus	877-2333	
Marshfield Campus	837-1835	
Milford Campus	473-2565	
Norwood Campus	769-4926	
Reading Campus	944-6005	
Revere Campus	289-8113	
Sandwich Campus	888-1957	
Westwood Campus	329-3030	
Weymouth Campus	335-9112	

Regular Office Hours

Boston		
120 Hayden Hall	Monday-Thursday	8:30 a.m.-8:00 p.m.
	Friday	8:30 a.m.-7:00 p.m.
102 Churchill Hall	Monday-Friday	8:30 a.m.-8:30 p.m.
	Saturday	8:30 a.m.-1:00 p.m.
Burlington (Suburban Campus)	Monday-Friday	8:00 a.m.-10:00 p.m.
	Saturday	8:00 a.m.-1:00 p.m.
Burlington High School	Monday-Thursday	5:30-10:00 p.m.
Belmont High School	Tuesday & Thursday	5:30-10:00 p.m.
Brockton High School	Monday & Wednesday	5:30-10:00 p.m.
Framingham North High School	Monday-Thursday	5:30-10:00 p.m.
Marshfield High School	Tuesday & Thursday	5:30-10:00 p.m.
Milford High School	Tuesday	5:30-10:00 p.m.
Norwood Junior High School	Monday-Wednesday	5:30-10:00 p.m.
Reading (Austin Prep.)	Tuesday	5:30-10:00 p.m.
Revere (Abraham Lincoln School)	Tuesday & Thursday	5:30-10:00 p.m.
Sandwich High School	Monday & Wednesday	5:30-10:00 p.m.
Westwood High School	Tuesday & Thursday	5:30-10:00 p.m.
Weymouth High School	Monday-Thursday	5:30-10:00 p.m.

Summer Office Hours

Boston		
102 Churchill Hall	Monday-Thursday	8:30 a.m.-8:30 p.m.
	Friday	8:30 a.m.-4:30 p.m.
	Saturday	Closed
120 Hayden Hall	Monday-Thursday	8:30 a.m.-8:00 p.m.
	Friday	8:30 a.m.-4:30 p.m.
Burlington	Monday-Friday	8:00 a.m.-10:00 p.m.
	Saturday	Closed
Marshfield	Tuesday & Thursday	5:30-10:00 p.m.
Norwood	Monday & Wednesday	5:30-10:00 p.m.

1981-1982 Academic Calendar

Fall Quarter 1981

Classes Begin Monday, September 28, 1981

Fall Registration Dates

Boston	5:00-8:00 p.m. 9:00-12 noon 5:00-8:00 p.m.	Tuesday-Friday, September 8-11 Saturday, September 12 Monday-Thursday, September 14-17
Burlington	5:00-8:00 p.m. 1:00-8:00 p.m.	Monday-Thursday, September 14-17 Tuesday, September 15
Belmont H.S.	5:30-8:00 p.m.	Thursday, September 10 and Tuesday, September 15
Brockton High School	5:30-8:00 p.m.	Wednesday, September 9 and Monday, September 14
Framingham North H.S.	5:30-8:00 p.m.	Tuesday, September 8 and Monday, September 14
Marshfield H.S.	5:30-8:00 p.m.	Thursday, September 10 and Tuesday, September 15
Milford H.S.	5:30-8:00 p.m.	Tuesday, September 8 and Tuesday, September 15
Norwood Jr. H.S. North	5:30-8:00 p.m.	Wednesday, September 9 and Monday, September 14
Reading (Austin Prep.)	5:30-8:00 p.m.	Tuesday, September 8 and Tuesday, September 15
Revere (Abraham Lincoln School)	5:30-8:00 p.m.	Thursday, September 10 and Tuesday, September 15
Sandwich H.S.	5:30-8:00 p.m.	Wednesday, September 9 and Monday, September 14
Westwood H.S.	5:30-8:00 p.m.	Thursday, September 10 and Tuesday, September 15
Weymouth North H.S.	5:30-8:00 p.m.	Wednesday, September 9 and Monday, September 14
Fall Quarter Classes Begin		Monday, September 28
Columbus Day Observed	No Classes	Monday, October 12
Veteran's Day Observed	No Classes	Wednesday, November 11
Thanksgiving Recess	No Classes	Thursday-Saturday, November 26-28
Final Examination Period for Fall Quarter		Monday-Saturday, December 14-19

Winter Quarter 1982

Classes Begin Monday, January 4, 1982

Winter Registration Dates

Boston	5:00-8:00 p.m. 5:00-7:00 p.m.	Monday-Thursday, December 7-10 Friday, December 11
Burlington	5:00-8:00 p.m.	Monday-Thursday, December 7-10
Belmont H.S.	5:30-8:00 p.m.	Tuesday, December 8
Brockton High School	5:30-8:00 p.m.	Wednesday, December 9
Framingham North H.S.	5:30-8:00 p.m.	Monday, December 7 and Tuesday, December 8
Marshfield H.S.	5:30-8:00 p.m.	Tuesday, December 8
Milford H.S.	5:30-8:00 p.m.	Tuesday, December 8
Norwood Jr. H.S. North	5:30-8:00 p.m.	Monday, December 7 and Wednesday, December 9
Reading (Austin Prep.)	5:30-8:00 p.m.	Tuesday, December 8
Revere (Abraham Lincoln School)	5:30-8:00 p.m.	Tuesday, December 8

Sandwich H.S.	5:30–8:00 p.m.	Wednesday, December 9
Westwood H.S.	5:30–8:00 p.m.	Tuesday, December 8
Weymouth North H.S.	5:30–8:00 p.m.	Wednesday, December 9 and Thursday, December 10
Christmas Vacation	No Classes	Monday-Saturday, December 21–January 2
Winter Quarter Classes Begin		Monday, January 4
Martin Luther King Jr.'s Birthday	No Classes	Friday, January 15
Washington's Birthday Observed	No Classes	Monday, February 15
Final Examination Period for Winter Quarter		Monday-Saturday, March 22–27
Spring Recess (or make-up period for lost snow days)		Monday-Saturday, March 29–April 3
Spring Quarter 1982		Classes Begin Monday, April 5, 1982

Spring Registration Dates

Boston	5:00–8:00 p.m.	Monday-Thursday, March 15–18
	5:00–7:00 p.m.	Friday, March 19
Burlington	5:00–8:00 p.m.	Monday-Thursday, March 15–18
Belmont H.S.	5:30–8:00 p.m.	Tuesday, March 16
Brockton High School	5:30–8:00 p.m.	Wednesday, March 17
Framingham North H.S.	5:30–8:00 p.m.	Monday, March 15 and Tuesday, March 16
Marshfield H.S.	5:30–8:00 p.m.	Tuesday, March 16
Milford H.S.	5:30–8:00 p.m.	Tuesday, March 16
Norwood Jr. H.S. North	5:30–8:00 p.m.	Monday, March 15 and Wednesday, March 17
Reading (Austin Prep.)	5:30–8:00 p.m.	Tuesday, March 16
Revere (Abraham Lincoln School)	5:30–8:00 p.m.	Tuesday, March 16
Sandwich H.S.	5:30–8:00 p.m.	Wednesday, March 17
Westwood H.S.	5:30–8:00 p.m.	Tuesday, March 16
Weymouth North H.S.	5:30–8:00 p.m.	Monday, March 15 and Wednesday, March 17
Spring Quarter Classes Begin		Monday, April 5
Patriot's Day Observed	No Classes	Monday, April 19
Memorial Day Observed	No Classes	Monday, May 31
Final Examination Period for Spring Quarter		Monday-Saturday, June 14–19
Commencement		Sunday, June 20

Summer Quarter 1982

Classes Begin Monday, June 21, 1982

Registration for entire Summer Quarter

Boston	5:00–8:00 p.m.	Tuesday-Friday, June 1–4
Burlington	1:00–8:00 p.m.	Tuesday, June 1
	5:00–8:00 p.m.	Wednesday, June 2
Summer Quarter Classes Begin		Monday, June 21

Registration for second five-week term

Boston	5:00–8:00 p.m.	Monday, July 19 and Tuesday, July 20
Burlington	5:00–8:00 p.m.	Monday, July 19
Independence Day Observed	No Classes	Monday, July 5
Labor Day Observed	No Classes	Monday, September 6
Final Examination Period for Summer Quarter		Held during last class session of each term

The University

Founded in 1898, Northeastern University is incorporated as a privately endowed nonsectarian institution of higher learning under the General Laws of Massachusetts. By special enactment, the State Legislature has given the University general degree-granting powers. The University is governed by a Board of Trustees elected by and from the Northeastern University Corporation, a body of nearly 200 distinguished business and professional men and women.

From its beginning, Northeastern University's dominant purpose has been to identify community educational needs and to meet these needs in distinctive and serviceable ways. The University has not duplicated the programs of other institutions, but has pioneered new areas of educational service.

A distinctive feature of Northeastern University is its Cooperative Plan, under which students alternate periods of work and study. This time-tested method of education offers students the opportunity to gain valuable practical experience as an integral part of their college programs and to contribute to the financing of their education. All Northeastern's undergraduate colleges operate on the Cooperative Plan, which requires five years for the student to earn a degree. The College of Arts and Sciences also offers a four-year noncooperative option. Several of Northeastern's graduate schools have structured their programs to include the features of cooperative education.

In the field of adult education, Northeastern University offers graduate and undergraduate degree programs and noncredit programs that are specifically designed to meet the needs and interests of adults who wish to further their education on a part-time basis.

All formal courses of study leading to degrees in the graduate division, Lincoln College, and University College are approved by the undergraduate faculties concerned, and are governed by the same qualitative and quantitative standards as the regular day curricula. Courses are scheduled in the day and evening at Northeastern's campuses in Boston, Burlington, Belmont, Brockton, Framingham, Marshfield, Milford, Norwood, Reading, Revere, Sandwich, Westwood, and Weymouth.

For more information about the undergraduate colleges, their programs or the cooperative plan of



education, contact the Admissions Office, Northeastern University, 360 Huntington Avenue, Boston, Massachusetts 02115, Tel. 617-437-2200.

Undergraduate Colleges

College of Arts and Sciences The College of Arts and Sciences offers majors in the arts and sciences leading to the Bachelor of Arts and Bachelor of Science degrees. Curricula are normally four years in length on a full-time plan or five years in length on the Cooperative Plan.

Boston-Bouvé College of Human Development Professions Offers programs of study leading to the degree of Bachelor of Science in Education in the fields of elementary education, human services, physical education, recreation and leisure studies, school and community health education, secondary education, and speech-language pathology and audiology, as well as a Bachelor of Science in Physical Therapy.

College of Business Administration The College of Business Administration offers programs of study in principal fields of business leading to the Bachelor of Science degree in Business Administration.

The College also sponsors a Center for Management Development, which annually conducts intensive programs designed to provide professional growth for experienced managers. The plan of instruction, based on a modification of the Northeastern cooperative program, permits the participants to maintain their job responsibilities during the five-month period of the course. The Management Development Program is conducted at Andover, Massachusetts, on the campus of Phillips Academy. The Center also conducts the Management Workshops scheduled on twelve Fridays, offering four core areas of management study.

The Bureau of Business and Economic Research provides administrative assistance on research projects carried out under faculty leadership and supervision.

College of Criminal Justice The College of Criminal Justice offers a full-time day curriculum on the Cooperative Plan leading to the degree of Bachelor of Science.

College of Engineering The College of Engineering offers five-year cooperative curricula in Civil (including an environmental engineering option), Mechanical, Electrical (including a power systems option and a computer engineering op-

tion), Chemical, and Industrial Engineering and Information Systems leading to the degree of Bachelor of Science with specification according to the engineering department in which the student qualifies. A more general program without specification leading to the Bachelor of Science degree is offered in which students design their curricula around a core of science, engineering science, and engineering courses (for example, computer science). For highly qualified students, most departments offer a five-year program leading to both bachelor's and master's degrees; students carry course overloads beginning in the third year. The College also offers part-time programs during evening hours leading to Bachelor of Science degrees in Civil, Mechanical, and Electrical Engineering, extending over eight years and meeting the same qualitative and quantitative standards of scholarship as the day curricula.

Lincoln College Lincoln College offers engineering technology programs leading to the degrees of Associate in Engineering, Associate in Science, and Bachelor of Engineering Technology. These programs are made available as:

(a) A full-time day curriculum on the Cooperative Plan leading to the degree of Bachelor of Engineering Technology (B.E.T.) in Mechanical and Electrical Engineering.

(b) A part-time evening program including pre-technology preparatory courses and degree programs leading to the Associate in Engineering (A.E.); and the Bachelor of Engineering Technology (B.E.T.) in Civil, Mechanical, and Electrical Engineering. The Associate in Science degree may be earned in the mathematical, physical, and chemical sciences.

The day B.E.T. program is often useful for the high school graduate or the student transferring from a community college or technical institute who desires a full-time day curriculum on the Northeastern Cooperative Plan.

In addition to its traditional curricula, Lincoln College Evening School offers interdisciplinary and certificate programs providing technological and professional development opportunities to meet special needs of the part-time student.

College of Nursing The College of Nursing offers programs leading to a Bachelor of Science degree in nursing, with special programs designed for licensed practical nurses or registered nurses.

College of Pharmacy and Allied Health Professions

The College of Pharmacy and Allied Health Professions offers five-year cooperative curricula leading to the degree of Bachelor of Science in Pharmacy, Bachelor of Science in Respiratory Therapy, Bachelor of Science in Toxicology, and to the Bachelor of Science degree with majors in medical laboratory science and medical record administration. Associate degree programs are offered in medical laboratory technology, respiratory therapy, and dental hygiene. In cooperation with the medical schools and teaching hospitals in the Boston area, the college offers a professional program for physician assistants.

University College University College, so called because it draws upon the resources of the other colleges of the University, offers part-time day and evening programs in arts and sciences, business administration, law enforcement, and health professions, leading to the Associate in Science, Bachelor of Arts, and Bachelor of Science degrees. It does not duplicate the offerings of the day colleges, but provides curricula that cut across traditional subject-matter areas to meet the particular needs of adult students. Students may pursue a degree or simply take courses, based on needs and interests, up to a total of 18 quarter hours of credit per quarter. Courses are offered in Boston as well as Burlington, Belmont, Framingham, Milford, Revere, Sandwich, Westwood, Weymouth, Norwood, Marshfield, and Reading.

Students may enroll as degree candidates or elect single courses appropriate to their needs and interests. Courses are scheduled in the day and evening at the Boston Campus, Suburban Campus in Burlington, and other off-campus locations near Boston.

Alternative Freshman-Year Program The Alternative Freshman-Year Program is offered by Northeastern University through University College. It is designed for students who want to go to college but whose high school records do not reflect their true abilities. Because it is structured to assist students in making the academic and social adjustments necessary for success in college, this program is well suited to those who feel that their potential is not reflected by their high school records and/or believe that they are not ready to undertake a full college curriculum.

The Alternative Freshman-Year Program is specifically designed to help students strengthen their basic academic skills in writing as well as math-

ematics. While helping them gain confidence in their ability to do college-level work, the program also offers them an opportunity to sample different areas of study before committing themselves to a specific major. In conjunction with the prescribed curriculum, professional counselors work with each student to establish a program suited to his or her individual needs. These same counselors are normally available on a continuing basis throughout the student's entire freshman year.

Developed in collaboration with University College, a division of Northeastern serving students who seek a flexible college program, the Alternative Freshman-Year Program has a proven record of success in assisting students to develop their full potential. Many students who began their college careers in the program have attained sophomore status and have continued in regular degree programs at the University.

This program is presently available only to non-science students who plan to enter one of the following four Basic Colleges: Arts and Sciences (nonscience), Business Administration, Criminal Justice, or Boston-Bouv   College of Human Development Professions.

Graduate Schools

For more information about the graduate schools and their programs, contact the individual school.

Arts and Sciences The Master of Arts degree may be earned in economics, English, history, political science, psychology, sociology, and sociology/anthropology. The Master of Science degree is available in biology, chemistry, economics, mathematics, and physics. The Master of Science in Health Science and the Master of Public Administration degrees are also offered. There are programs leading to the Certificate of Advanced Graduate Study in Literary Study, and the Doctor of Philosophy degree in biology, chemistry, economics, mathematics, physics, psychology, and sociology.

Boston-Bouv   College of Human Development Professions

Offers the Master of Education degree, the Master of Science degree, the Certificate of Advanced Graduate Study, and the Doctor of Education degree. At the master's level, programs are available in curriculum and instruction, early childhood education, public school administration, instructional technology, career education, physical education, education for teachers of severely handicapped or other special needs populations, recreation and leisure studies, physical

therapy, speech pathology and audiology, rehabilitation administration, cooperative education, school counseling, college counseling, rehabilitation counseling, educational research, human development, sound sciences, exercise sciences, movement behavior, and therapeutic recreation.

Business Administration Master of Business Administration.

Criminal Justice Master of Science in Criminal Justice; the Master of Science degree and the interdisciplinary and Doctor of Philosophy degree in Forensic Chemistry are offered.

Engineering Master of Science degrees are offered with course specifications in the fields of Civil, Chemical, Electrical, Industrial Engineering and Information Systems, and Mechanical Engineering, Transportation, and Engineering Management. A six-year program leading to both a bachelor's and master's degree is offered in Electrical Engineering, Mechanical Engineering, and Power Systems. Professional Engineers Degrees are offered in Electrical, Industrial, and Mechanical Engineering. Ph.D. degrees are offered in Civil, Chemical, Electrical, and Mechanical Engineering. A Doctor of Engineering degree in Chemical Engineering is offered in addition to the Ph.D.

Law The School of Law offers a full-time program of professional instruction leading to the degree of Juris Doctor (J.D.). The three-year curriculum includes twelve months of experience in law offices, governmental agencies, or other law-related employment. There are no courses for part-time or evening students.

Pharmacy and Allied Health Professions

Master of Science with specialization in Clinical Chemistry, Hospital Pharmacy, Medicinal Chemistry, Pharmacology, Medical Laboratory Science, and Radiopharmaceutical Science; Doctor of Pharmacy; and Doctor of Philosophy in Biomedical Chemistry with specialization in Biopharmaceutics, Clinical Chemistry, Medical Laboratory Science, Pharmacology, and Pharmaceutical Sciences.

Professional Accounting A five-quarter curriculum leading to the degree of Master of Science in Accounting.

Insurance Institute

The Insurance Institute is sponsored by local insurance organizations and companies. It offers a number of noncredit courses in preparation for the

Chartered Life Underwriter and Chartered Property-Casualty Underwriter designations as well as for the General Insurance, Insurance Adjuster, and Risk Management certificates.

Center for Continuing Education

The Center for Continuing Education was established to relate the University to various educational needs of its urban community. Its purpose is to assist both individuals and organizations who wish to keep pace with a society in the process of accelerated social and economic change. The Center offers a wide range of workshops, conferences, institutes, forums, and special training programs in areas which include business, health, engineering, graphic arts, and food service. For more information, please write or call the Northeastern University Center for Continuing Education, 303 Wyman Street, Waltham, Massachusetts 02154, telephone 617-890-1134.

Research

Research is an important activity at Northeastern University, and directly and indirectly supports the instructional programs. The University is engaged in a wide variety of basic research projects in business, the physical and biological sciences, the social sciences, the allied health sciences, and engineering, many of which are supported by extramural grants and contracts. The development of research and scholarship activities is fostered by the University Council on Research and Scholarship. The administration of these activities is coordinated by the Vice Provost for Research and Graduate Studies, and administrative services are provided by the Office of Sponsored Programs.

The University has several Institutes and Centers devoted to research. These include the Marine Science Institute, the Center for Applied Social Research, the Institute for the Interdisciplinary Study of Education, and the Institute of Chemical Analysis, Applications, and Forensic Science.

Buildings and Facilities

The main campus of Northeastern University is located at 360 Huntington Avenue in the Back Bay section of Boston. Many of the city's famous cultural, educational, and philanthropic institutions are situated in the Back Bay, including the Museum of Fine Arts, Symphony Hall, Horticultural Hall, the Isabella Stewart Gardner Museum, the Harvard teaching hospitals, and many schools and colleges. Most are within walking distance of Northeastern University.

Major transportation facilities serving the Boston area are Logan International Airport, two rail terminals, bus terminals serving inter- and intrastate lines, and MBTA subway-bus service within the metropolitan-suburban area. There is a subway stop in front of the campus. For motorists, the best routes to the campus are the Massachusetts Turnpike (Exit 22) and Route 9, of which Huntington Avenue is the intown section.

The campus of 50 acres is divided by Huntington Avenue, with the main educational buildings on one side and dormitories on the other. The principal buildings, all of which have been constructed since 1938, are of glazed brick in contemporary classic style. Most are interconnected by underground passageways.

Carl S. Eli Student Center

The Carl S. Eli Student Center provides facilities for student recreation and for extracurricular activities. The Alumni Auditorium, with a seating capacity of 1,300, is part of the Center. Also included are special drama facilities, a ballroom, main lounge, fine arts exhibition area, student offices, conference rooms, and a dining area seating more than 1,000.

The University Library

The University Library System includes the Dodge Library and the three graduate libraries: Chemistry, 112 Hurtig Hall, which includes Chemical Engineering, Biology, Pharmacy and the Health Sciences; Physics/Electrical Engineering, 324 Dana Hall; and Mathematics/Psychology, 531 Nightingale Hall. The Suburban Campus Library supports the programs at Burlington. Other collections are at the Marine Science Institute in Nahant, and the Center for Management Development in Andover. There is also the Law Library located in the Knowles Center, and the Curriculum Resources Library in Nightingale Hall.



The University Library collections consist of over 458,000 bound volumes, and 525,000 microform volumes. The periodical titles number 4,000, additional continuation titles 1,243, and sound recordings 10,000.

1. The Reference Collection in the Cabot Reading Room on the main floor of the Dodge Library contains 20,000 volumes. This collection is of major importance to anyone using the Library. The researcher should be aware of the source books, handbooks, bibliographies, etc., before beginning an investigation of the literature.

The Reference Division includes the Government Documents Collection, located in 14 Dodge, and the Microforms Collection, located in 108 Dodge. Additional sources of information are the Business Services, Technical Reports, Annual/Company Reports, and the Information File for pamphlet materials.

2. The Periodical Collection in the Webster Reading Room on the main floor consists of Indexing and Abstracting Services, and the current periodicals, mainly in literature, humanities, social sciences, and general science, as well as foreign and domestic newspapers.

This collection supports the Reference Collection and brings up to date the General Collection by encompassing the latest developments in all fields of knowledge.

The Periodical Stacks are adjacent to the collection and are serviced by the library staff.

3. The General Collection is located on the three floors and two stack levels of the Dodge Library indicated by posted floor plans and guides available at the Information Desk.

4. The Reserve Book Collection is located in 204 Dodge. This collection of textbooks and assigned reading supports classroom lectures and laboratories as well as providing additional in-depth information.

5. The Public Catalog located on the main floor includes author, title, and subject cards for the foregoing collections, except for documents, technical reports, and complete entries for periodicals, which will be found in catalogs in those areas. The Public Catalog includes both the Dewey Decimal classification, and the Library of Congress classification.

6. The Circulation Department manages the organization of the General Collection. Materials are charged out and returned at the Circulation Desk. A daily computer printout of items on loan is available to assist in locating books not found on the shelves.

7. The Inter-Library Loan Department is located in 18 Dodge. This service should be used for materials not available in the system and for serious research.

8. The Music Reference Service is located in 406 Dodge. This collection of books, scores, records, and tape cassettes is for assigned listening and personal enjoyment. The collection contains both music and spoken word.

9. The Learning Resources Center, 406 Dodge, is a service for programmed and language instruction utilizing audio-visual video equipment teaching programs to support classroom work and independent study.

10. It should be understood that the Divisional Libraries, the Burlington Campus, and the Law School Library have the same services and card catalogs to support those disciplines.

Library Hours

Dodge Library
Mon.-Thurs.

7:45 a.m. to 10:00 p.m.
(10:00 p.m. to midnight)*

Friday

7:45 a.m. to 7:30 p.m.

Saturday

12:00 noon to 5:00 p.m.
(5:00 p.m. to 10:00 p.m.)*

Sunday

12:00 noon to 5:00 p.m.
(5:00 p.m. to midnight)*

*References and Periodicals; for study only.

Divisional Libraries

Mon.-Thurs.

8:30 a.m. to 10:00 p.m.

Friday

8:30 a.m. to 7:30 p.m.

Saturday-Sunday

Closed

Suburban Campus Library

Mon.-Thurs.

8:30 a.m. to 9:00 p.m.

Friday

8:30 a.m. to 5:00 p.m.

Saturday

8:30 a.m. to 1:00 p.m.

Sunday

Closed

Office of Services for the Handicapped

Handicapped students and employees can obtain assistance and support from the Office of Services for the Handicapped, located in Room 5, Ell Center. Ruth Bork is responsible for coordinating the University's services, activities, and facilities that are accessible to and usable by handicapped persons. The OSH telephone number is 617-437-2675.

Counseling and Testing Center

Counseling and testing to aid a student or prospective student with career, educational, or personal concerns are available days and certain weekday evenings until 8:30 p.m. Information and appointments may be obtained by calling

617-437-2142, or by visiting the Counseling and Testing Center, 302 Ell Student Center.

Cabot Physical Education Center

The Godfrey Lowell Cabot Physical Education Center is one of the best equipped in New England. It contains four basketball courts, an athletic cage, a women's gymnasium, and a rifle range, as well as administrative offices for the Department of Athletics and for the Physical Education Department of Boston-Bouvé College of Human Development Professions.

The Barletta Natatorium houses a 105-foot swimming pool, a practice tank for the crew, handball courts, and shower and dressing facilities.

Dockser Hall

Charles and Estelle Dockser Hall, completed in 1968, houses a large gymnasium, dance studio, motor performance laboratory, college library, community recreation laboratory, folk arts center, dark room, recreation resources area, locker rooms, offices, classrooms, conference room and lounge, storage facilities, and a research laboratory.

Suburban Campus

The Burlington campus of Northeastern University was established in 1964 because businesses and industries in the Route 128 area expressed a need for educational programs that their employees could utilize. The campus is located near the junction of Routes 128 and 3 in Burlington, Massachusetts.

The diversity of programs offered at Burlington encompasses undergraduate, graduate, and continuing education courses. Full- and part-time degree programs, as well as nondegree certificate programs, are available.

Henderson House

The University's conference center, Henderson House, is located in Weston, Massachusetts, twelve miles from the Boston campus. Henderson House provides a gracious setting for both large and small conferences and meetings, and its facilities include a dining service and some overnight accommodations. For more information about Henderson House, please telephone 617-890-1134.

Warren Center

The Warren Center is located on 165 acres in Ashland, Massachusetts, thirty miles west of Boston. The Center provides an outdoor laboratory for students of physical education, and recreation and leisure studies at Northeastern University's Boston-

Bouvé College of Human Development Professions. The Warren Center is also available to Northeastern University faculty, staff, alumni, and students, as well as to other educational groups seeking enrichment in an outdoor setting. The Center offers woods, fields, a lake, tennis courts, an archery range, a lacrosse field, a ropes course, and an outdoor pavillion and recreational sports area. Its facilities include a lodge, five winterized and heated cottages, each capable of housing twenty-four people in dormitory-style sleeping rooms, and a health lodge with nurses' quarters, treatment room, and infirmary area.

Marine Science Institute

The Marine Science Institute at Nahant, Massachusetts, located about twenty miles northeast of Boston, is a research and instructional facility primarily engaged in studies of marine biology and oceanography. The Institute is operated throughout the year.

University College

John W. Jordan, Dean
Robert W. O'Connor, Associate Dean for
Academic Programs
Ralph T. Vernile, Jr., Associate Dean for
Administration

The Programs

University College is committed to the education of mature adult students who wish to live effectively in today's complex society. The programs in the College are specifically designed to satisfy the changing professional, cultural, and social needs and interests of adults. They are constantly evaluated, and redesigned when necessary, to keep pace with students and community.

Degree programs have been developed in 39 major fields of study in the areas of business administration, arts and sciences, law enforcement, and health professions. Courses are offered on a part-time basis Monday through Saturday during day and evening hours convenient for adults. Students may elect single courses or may enroll in full-degree programs leading to the Associate in Science or the Bachelor's degree. Short-term seminars are also offered for credit. Classes are scheduled in several locations that are accessible to the urban and the suburban community.

The Faculty

Approximately 1,000 men and women comprise the part-time teaching staff of University College. Included are members of the full-time faculty of Northeastern University and other educational institutions in New England, as well as outstanding New England business and professional leaders with backgrounds of training and experience in specialized areas. The faculty are selected because they are highly successful in their fields and are well qualified to provide sound methods of teaching for adults in an interesting, inspiring, and effective manner.

The Student Body

The student body of University College represents the diversity of interests that is one of the basic strengths in adult education. Approximately 16,000 students range in age from 18 years to beyond retirement. Some enroll immediately after high school graduation. Others may have graduated several years ago.

University College students can have full-time commitments to their jobs, families, or other responsibilities. They may enroll in a single course or

in a full-degree curriculum, depending on whether their goals are career related or for personal enrichment.

University College and Adult Education Administrative Officers

John W. Jordan, B.S., M.Ed., *Dean of University College*

Ann A. Barto, B.S., *Assistant Director for Office Services*

Richard J. Comings, A.B., M.A., *Director of Special Programs*

Joseph N. Connors, B.S., M.P.A., *Associate Dean and Director of Social Science Programs*

Edward J. Czarnowski, B.S., Ed.M., C.L.U., *Assistant Dean and Director of Insurance Institute*

Michael S. Dvorchak, B.A., M.A., *Associate Dean and Director of Suburban Campus*

William T. Edgett, A.B., M.A., *Assistant Dean and Assistant Director, Academic and Student Affairs*

Jean F. Egan, B.S., M.Ed., *Cooperative Education Coordinator, University College, Cooperative Education Program*

Kathleen H. Hayes, A.B., *Assistant Director, Academic and Student Affairs*

David R. Kane, B.S., *Registrar*

Marjorie Koretsky, B.S., M.Ed., *Associate Dean and Director of Health Professions Programs*

Alan A. Mackey, B.S., A.M., *Associate Dean*

Paul D. Maxwell, B.S., M.B.A., *Associate Dean and Director of Business Administration Programs*

Karen E. McGuire, B.S., M.Ed., *Assistant Director for University College Placement*

Dorothy A. Meckel, A.B., M.A., Ed.D., *Assistant Director for Publications and Research*

Timothy F. Moran, B.S., M.Ed., *Associate Dean and Director of Law Enforcement, Corrections, and Security Programs*

Harold Naidus, A.B., M.S., Ph.D., *Associate Dean and Director of Science Programs*

Robert W. O'Connor, A.B., Ed.M., Ed.D., *Associate Dean for Academic Programs*

Donald M. Phillips, B.A., *Assistant Registrar*

Jacqueline Platt, B.S., M.Ed., *Assistant Director, Suburban Campus, and Director of Counseling, Burlington*

Esther D. Reid, B.A., *Assistant Director for Data Processing Services*

Kenneth C. Solano, A.B., M.Ed., *Associate Dean*

Joseph F. Suszynski, B.S., *Assistant Director, Academic and Student Affairs*

Gretchen M. Thompson, B.A., *Assistant Director, Academic and Student Affairs*

David B. Thornton, B.S., *Assistant Registrar*

Ralph T. Vernile, Jr., B.S., *Associate Dean for Administration*

Marilyn S. Wiener, A.B., M.A., *Associate Dean, Director of Humanities Programs*

Executive Committee

John W. Jordan, Chairperson

Joseph N. Connors

Marjorie Koretsky

Paul D. Maxwell

Timothy F. Moran

Harold Naidus

Robert W. O'Connor

Kenneth C. Solano

Ralph T. Vernile, Jr.

Marilyn S. Wiener

Committee on Academic Standing

William T. Edgett, Chairperson

Joseph N. Connors

Marjorie Koretsky

Paul D. Maxwell

Timothy F. Moran

Harold Naidus

Robert W. O'Connor

Marilyn S. Wiener

John W. Jordan, *Ex Officio*

Law Enforcement Curriculum Committee

Timothy F. Moran, Chairperson
 Richard D. DeBoer, Jr.
 Francis R. Hankard
 Robert F. Johnson
 Joseph M. Jordan
 Bernard Manning
 Robert W. O'Connor
 Carmen S. Pizzuto
 Three Student Representatives
 John W. Jordan, *Ex Officio*

Arts and Sciences Executive Committee

Joseph N. Connors
 Harold Naidus
 Marilyn Wiener
 John W. Jordan, *Ex Officio*

Arts and Sciences Curriculum Committee

Joseph N. Connors, Chairperson
 Harold Naidus, Chairperson
 Marilyn S. Wiener, Chairperson
 Samuel S. Bishop
 Eugene J. Blackman
 Robert L. Cord
 Harold M. Goldstein
 Edward A. Hacker
 Charles Karis
 Lila S. Leibowitz
 Philip W. Lequesne
 Marvin X. Lesser
 Roland L. Nadeau
 Robert W. O'Connor
 Holbrook C. Robinson
 Raymond H. Robinson
 Fred A. Rosenberg
 George A. Speers
 David L. Wilmarth
 Michael L. Woodnick
 Three Student Representatives
 Three Part-Time Faculty Representatives
 John W. Jordan, *Ex Officio*

Library Committee

Richard J. Comings, Chairperson
 Marvin X. Lesser
 Paul D. Maxwell
 Timothy F. Moran
 Harold Naidus
 John W. Jordan, *Ex Officio*

Health Professions Curriculum Committee

Marjorie Koretsky, Chairperson
 Thomas A. Barnes
 Sandra A. Best
 Stanley A. Bozen
 Annalee Collins
 Bynum M. Jackson
 Robert W. O'Connor
 M. Barbara Schulze
 Judith Weilerstein
 Two Student Representatives
 Two Faculty Representatives
 John W. Jordan, *Ex Officio*

Therapeutic Recreation Curriculum Committee

Marjorie Koretsky, Chairperson
 Sheryl L. Fairchild
 Sidra Gruss-Zasmosky
 Jacalyn S. Hamada
 Richard J. Hoffmann
 Suenje Matthiesen
 Robert W. O'Connor
 Jon J. Oliver
 William V. Ramaskewich, Jr.
 Herbert L. Richmond
 Frank M. Robinson, Jr.
 John W. Shank
 Janet S. Swanson
 Two Student Representatives
 John W. Jordan, *Ex Officio*

Business Administration Curriculum Committee

Paul D. Maxwell, Chairperson
 W. Arthur Gagne
 Robert L. Goldberg
 Ronald E. Guittarr
 Robert J. Hehre
 Thomas J. McNamara
 Robert W. O'Connor
 Joel M. Rosenfeld
 Three Student Representatives
 John W. Jordan, *Ex Officio*



Office of Academic and Student Affairs

William T. Edgett Academic Adviser, Assistant Director
 Jean Egan Cooperative Education Coordinator, University College, Cooperative Education Program
 Kathleen H. Hayes Career Counselor, Assistant Director
 Karen E. McGuire Assistant Director for University College Placement
 Jacqueline Platt Academic Adviser, Assistant Director, Suburban Campus
 Joseph F. Suszynski Academic Adviser, Assistant Director
 Gretchen M. Thompson Academic Adviser, Assistant Director

Academic Policies

Admission and Registration
 Matriculation: Becoming a Degree Candidate
 Graduation Requirements
 Transfer Credit Policy
 Grading System
 Attendance, Homework, and Examinations
 Miscellaneous Policies

See pages 22–28 for further information.
 Telephone: 617–437–2400

Career and Academic Counseling Services

New Student Open Houses
 Academic Advisers
 Career Counseling
 Self-Assessment and Career Development
 Job-Search Seminars
 Cooperative Education
 Core Career Courses for Women
 Counseling and Testing Services
 Placement

See pages 29–31 for further information.
 Telephone: 617–437–2400

Academic Policies

Admission and Registration

Open Admission University College has an open admission policy. This policy allows students to enroll in any course simply by registering for the course. It is not necessary to submit a formal application for admission, nor are entrance examinations or College Board Examination scores required.

The open admission policy applies equally to both nondegree students and to those who intend to obtain an undergraduate degree at University College. Many students enroll in courses at the College for their personal enrichment or to gain specific career-related skills. Credits earned for these courses may be applied to a degree program if the student desires to pursue a degree at a later time. In some cases, nondegree students already have an undergraduate degree and are interested in specific courses for their continuing education. Nondegree students are considered members of the University College community, and are entitled to the student support services offered by the College. Students who decide to pursue a degree program at University College will eventually need to become matriculated into the College. See page 23 for further information about the matriculation process.

Registration Students may register for courses by reporting to any of the College's thirteen campuses during the registration periods which are scheduled each quarter. It is not necessary to register at the campus where a particular course actually meets; students may register at any campus for a course scheduled at any other campus. All students must complete a registration form before attending class; attendance at class, even with the instructor's permission, does not constitute registration. No academic credit will be awarded to students who are not properly registered. See the Academic Calendar on page 6 for a complete registration schedule.

Not all the courses listed in this *Bulletin* are offered each quarter. A complete list of the courses offered in any particular quarter is contained in the University College *Schedule Guide* for that quarter. A *Schedule Guide* is distributed for the Fall, Winter, Spring, and Summer quarters at all campuses, or by mail upon request (telephone 617-437-2400).

Help with Course Selection Academic advisers (see page 29) are available throughout the year by appointment to help students plan their academic programs and select courses. Students who have earned credits from other schools are urged to have their transcripts evaluated prior to the registration period in order to avoid registering for courses that duplicate work completed at other educational institutions. Advisers are also available without appointment to answer general questions during the official registration periods at all campuses.

Before registering for a course, students should read the course description in this *Bulletin* to determine if it is necessary to have taken a prior or prerequisite course. In order to insure academic success, students are strongly advised to adhere to course prerequisites.

Placement Tests Students registering for mathematics courses offered by Lincoln College must take a mathematics placement test given during registration. Students registering for Mathematics I (10.627) may also take the placement test on the first night of class. However, students registering for College Algebra I (10.607) must have taken the placement test during registration to be admitted to class. Students who have taken Introductory Mathematics courses 10.681 and 10.682, or 10.671 and 10.672, must have evidence of successful completion to register.

Students enrolling in English I will be asked to complete a brief writing sample at their first class meeting. Based on this sample, their instructor may refer them to a more basic course in English composition.

Maximum Course Load New students may elect up to four subjects per quarter without special permission. Former students who are not on the Dean's List may also elect up to four subjects per quarter without special permission. Students who are on the Dean's List may elect a maximum of eighteen quarter hours per quarter without special permission.

Class Changes University College reserves the right to cancel, divide, or combine classes when necessary. While this policy insures that students

will almost never be excluded from a class because it is over-subscribed, it also means that a course may occasionally be canceled because of inadequate enrollments. Cancellations are more likely to occur among upper-level or advanced courses than among introductory courses. To avoid course cancellations, students are urged to register early.

Pass/Fail Courses Students may register for one *elective* course per quarter on a pass/fail basis. To be eligible for pass/fail status in a course, the student must be in good academic standing (not on academic probation) and must have completed thirty-nine quarter hours of academic work. Thereafter, the student may register for one pass/fail course for each fifteen quarter hours of successfully completed work. The student must also meet all prerequisites for the courses.

To be graded on the basis of pass/fail, the student must obtain a Pass/Fail Permission Card signed by the Program Director for his/her program of study. This card must then be brought to the instructor of the course. In addition, the Registrar must be notified in writing by the student of the student's intention to take the course on a pass/fail basis prior to the fourth meeting of the course.

Auditing Policy Students are permitted to audit courses, but they must complete the usual registration forms and pay regular tuition fees. There is no reduction in fees for auditing. An auditor may participate in class discussion, complete papers and projects, and take tests and examinations for informal evaluation. However, regardless of the amount or quality of work completed, **no academic credit will be granted at any time for audited courses.**

The student's decision to audit a course must be communicated in writing to the Registrar prior to the fourth meeting of the course. No exception to this procedure can be approved without authorization by the Academic Standing Committee of the College.

Withdrawal Policy A student who wishes to withdraw from a course must complete a Course Drop form in the Registrar's Office, or notify the Registrar in writing of his or her intention to withdraw. The forms are available at all campus locations. If, after the first class meeting, a student misses three consecutive class meetings of a course, he or she will automatically be withdrawn from the course by the Registrar. If, by the ninth

or tenth week of the quarter, the Registrar examines the attendance book and has every reason to believe that the student has dropped the course, the student will be officially withdrawn, and his or her withdrawal will be noted in the attendance book. (See page 33 for information on tuition refunds.)

Matriculation—Becoming a Degree Candidate

Matriculation is the procedure for becoming a degree candidate, and it is mandatory for all students intending to pursue a degree program at University College. The procedure for matriculating is initiated by filing a Petition for Matriculation with the Office of Academic and Student Affairs, or at any branch campus office. The petition may be requested by telephone (617-437-2400), and the completed form returned by mail to the Office of Academic and Student Affairs, 102 Churchill Hall, Northeastern University, 360 Huntington Avenue, Boston, Massachusetts 02115.

To be eligible for matriculation, a student must complete at least eighteen hours of credit at University College including the satisfactory completion of English 1, 2, 3 (30.305, 30.306, 30.307) or their equivalent. The student must be a graduate of a regionally accredited high school or secondary school (an institution having recognition and membership in one of the six regional accrediting associations recognized by the Council on Post-secondary Accreditation) or possess a High School Equivalency Certificate. The student must have a residence quality point average of at least 2.0 (a C average at University College) and must maintain this minimum quality point average to continue as a matriculated student.

Matriculation Requirements for Transfer Students A student who has petitioned to transfer credits from another regionally accredited institution of higher education (an institution having recognition and membership in one of the six regional accrediting associations recognized by the Council on Post-secondary Accreditation) or from other sources such as CLEP or PEP examinations (see page 25), may matriculate after completion of one quarter in University College, provided a total of 18 hours of credit have been completed from all sources. (See page 24 for procedures for transferring credit from another institution.) The English 1, 2, 3 (30.305, 30.306, 30.307) requirement or the equivalent must be satisfied as well as high school or secondary school graduation or possession of a High School Equivalency Cer-

tificate. The student must have a residence quality point average of at least 2.0 (a C average in University College) and must maintain this minimum quality point average to continue in a matriculated status.

Graduation Requirements

The requirement for graduation from University College is 174 quarter hours for a bachelor's degree and 96 quarter hours for an associate's degree, with attainment of a quality point average of 2.0 (an average grade of C). Although the credits allowed for acceptable work completed elsewhere by transfer students count toward fulfillment of quantitative graduation requirements, neither the credits nor the grades earned in such courses are included in the quality point computations for graduation. Course requirements for each degree are different, and are outlined in this *Bulletin*.

Graduation with Honor Candidates who have achieved distinctly superior attainment in their academic work will be graduated with honor. Upon special vote of the faculty, a limited number of this group may be graduated with high honor or with highest honor. To be considered for graduation with honor, a student must have completed a minimum of 72 quarter hours of work at University College. Courses transferred from other educational institutions will not be considered in determining honor graduates.

Residence Requirement Every candidate for the bachelor's or associate's degree must fulfill the minimum residence requirement. The residence requirement is defined as the satisfactory completion of at least 45 quarter hours of course work in University College immediately preceding graduation. At least 12 of the 45 quarter hours must be in the candidate's major field of study. A student whose enrollment in a degree program is interrupted for a period of one year or more will be reinstated in the program at the time of re-entry into University College.

In Absentia Status If a student moves beyond a reasonable commuting distance from University College or its branch campuses, but has completed 135 or more quarter hours of credit (including a maximum of 60 quarter hours of transfer credit), the Committee on Academic Standing will consider a petition to allow the student to complete his or her requirements for a University College degree at another approved college. The courses remaining must be completed within two

years from the date of official approval of the student's in absentia status.

Senior Status Procedure All potential graduates will be polled during the Fall quarter to determine their intention to graduate during the current academic year. To be considered for graduation in June, a student must return a Commencement Data Card prior to the start of the Winter quarter of the academic year in which he or she expects to graduate. September graduates will be polled during the month of June.

Throughout the academic year, the Office of Academic and Student Affairs issues Senior Status Reports on request to potential graduates in order to assist them with the selection of courses required for program completion. Seniors are encouraged to request a Senior Status Report during the summer prior to the academic year in which they plan to graduate. Petition forms for status reports are available in 102 Churchill Hall on the Boston campus and at the main office of each branch campus.

Since the University College residence requirement prescribes the completion of at least 45 quarter hours of credit in residence immediately preceding graduation, a student who intends to graduate in any academic year may not use courses at any other institution for the purpose of transferring credit. For the same reason, a senior is not allowed to use credit gained through CLEP or PEP examinations to fulfill requirements during his or her final year of study at University College. Under special circumstances, exceptions to this policy will be considered by the Committee on Academic Standing, provided the student petitions for an exception prior to the start of the Winter quarter.

Transfer Credit Policy

Transfer Credit from Another Institution Students may transfer credit from accredited institutions of higher education when courses completed are applicable to the student's program in University College. The minimum course grade acceptable for transfer credit is C, or 2.0 on a four-point scale. An accredited institution of higher education is an institution having recognition and membership in one of the six regional accrediting associations recognized by the Council on Post-secondary Accreditation.

Transfer Credit Procedure A student who wishes to obtain a tentative evaluation of credits earned from another institution must file an Advanced

Standing Credit Petition with the Office of Academic and Student Affairs. The student must then write to the Registrar of the institution(s) previously attended and request that an official transcript (one bearing that institution's seal) be forwarded to the Office of Academic and Student Affairs, 102 Churchill Hall, Northeastern University, 360 Huntington Avenue, Boston, Massachusetts 02115. The transcripts should indicate courses completed, credits, and grades earned. Upon receipt of official transcripts, the Office of Academic and Student Affairs will issue a tentative evaluation of all credits as they apply to the student's program in University College. Official awarding of credit will be recorded on the student's University College transcript when matriculation is approved.

Students who have been dismissed from other institutions for academic or other reasons must enclose with their Advanced Standing Credit Petition a statement from the dean or other appropriate official of the previously attended institution stating the reasons for dismissal. The statement must also include a recommendation for acceptance at University College.

Evaluation of International Educational Credentials

Students requesting an evaluation of international educational credentials for transfer credit in University College will be assessed a fee of \$30. The evaluation will be issued by the Office of Academic and Student Affairs upon receipt of an Advanced Standing Credit Petition, official copies of all transcripts translated into English, and a check in the amount of \$30.00, payable to Northeastern University. The official assessment of international educational credentials will be made in accordance with current standards for awarding advanced standing credit at University College, or as recommended by the Center for International Higher Education Documentation. The \$30.00 fee will be waived for any University College student who has matriculated prior to requesting the evaluation.

Course(s) at Another College or University

A student who is matriculated in a degree program at University College, and who wishes to complete one or more courses at another institution for transfer purposes, must obtain written permission from the Office of Academic and Student Affairs prior to enrolling in the course. Courses taken at other institutions may be disallowed unless written permission is obtained in advance. Seniors (students in their final year of study at University College) should refer to information about the residence

requirement (p. 24) for further clarification of this policy.

Credit by Examination University College will award credit by examination provided the examination does not represent a duplication of other previously earned academic credit. Credit is granted for successful completion of examinations currently available through the College-Level Examination Program (CLEP) of the College Entrance Examination Board, and through the Proficiency Examination Program (PEP) of the American College Testing Program. Both programs have been designed to assist students in acquiring college-level credit for knowledge acquired through nontraditional means such as on-the-job training, educational television, correspondence and extension study, and independent study. Information about these programs is available in the Office of Academic and Student Affairs at University College, and at the Northeastern University Counseling and Testing Center.

Modern Language Proficiency Examination

Students may be eligible to receive credit for proficiency in a modern language. Examinations are currently offered in French, Spanish, German, Russian, and Italian. Students should contact the Modern Language Department, 360 Holmes Building, telephone 617-437-2234, for information concerning these examinations.

Noncollegiate Experience Credit

Law Enforcement students may be granted up to eighteen hours of credit in their program by successfully completing one or more of the noncollegiate credit examinations that have been made available through their Program Director's office. Examinations are periodically scheduled by the Counseling and Testing Center.

Arts and Sciences students may petition for noncollegiate experience credit through their major adviser if they are matriculated in the Arts and Sciences program with a departmental major. See page 86 (Law Enforcement) and page 64 (Arts and Sciences) for more details on opportunities for noncollegiate experience credit.

Credit cannot be awarded through noncollegiate experience petitions or examinations when an appropriate examination is available through CLEP or PEP.

Credit for Extra-Institutional Learning Extra-institutional learning is that which takes place outside the sponsorship of legally authorized and accredited post-secondary educational institu-

tions. The term applies to learning acquired from formal courses sponsored by associations, governments, business, and industry.

In awarding credit for extra-institutional learning, University College utilizes the *National Guide to Credit Recommendations for Noncollegiate Courses*, published annually by the American Council on Education.

Students applying for credit for extra-institutional learning must submit an Advanced Standing Credit Petition and provide official credentials from the sponsoring noneducational organization to the Office of Academic and Student Affairs at University College. The credit may be applied toward degree requirements at University College if recommended in the *National Guide*, provided credit is not otherwise obtainable through CLEP, PEP, or Noncollegiate Experience Credit programs at University College.

Grading System

A student's work in each course is evaluated by the instructor, who awards a letter grade at the end of the quarter. This grade is officially recorded by the Registrar's Office. The grades and symbols used are given below, together with the numerical equivalents used for computing quality point averages:

A	(4.0)
A-	(3.667)
B+	(3.333)
B	(3.0)
B-	(2.667)
C+	(2.333)
C	(2.0)
C-	(1.667)
D+	(1.333)
D	(1.0)
D-	(.667)
F	(0)
I	Incomplete
L	Audit (No Credit)
S	Satisfactory (Pass-Fail Grade)
U	Unsatisfactory (Pass-Fail Grade)
X	Incomplete (Pass-Fail Grade)
*	Grade not received

Grade Reports and Transcripts An official grade report will be mailed to each registered student approximately three weeks after the quarter is completed. A supplementary grade report will be issued when a missing grade or a grade change is received. University regulations prohibit issuing grades by telephone. Grade reports of matricu-

lated students indicate both their quarterly Quality Point Average and their cumulative Quality Point Average.

Students may obtain a transcript of their grades by making a request in writing to the Registrar's Office, 120 Hayden Hall, Northeastern University, 360 Huntington Avenue, Boston, Massachusetts 02115. Unofficial transcripts are issued free of charge; official transcripts which bear the University seal cost one dollar.

Quality Point Average The method of figuring the Quality Point Average is as follows: the numerical equivalent of each grade received is multiplied by the credit hours earned; the quality points are added together, then divided by the student's total quarter hours. An example follows:

Grade Achieved	Numerical Equivalent	Credit Hours	Quality Points
A	4.0	3	12.0
B-	2.667	3	8.0
C	2.0	6	12.0
F	0.0	3	0.0

$$\text{Quality Point Average} = \frac{\text{Total Quality Points (32.0)}}{\text{Total Credit Hours (15)}} = 2.13$$

Pass-Fail grades (S, U, and X), Incompletes (I), and Audits (L) are not included in the Quality Point Average. Similarly, transfer credits are not included in Quality Point Averages. However, the total earned hours appearing on the student's transcript include both transfer credits and S grades.

A cumulative grade point average below 2.0 is unacceptable and will not allow a student to continue in University College or to receive a degree from Northeastern University. The F grade is a definite failure and requires repetition of the course in its entirety. A student whose academic performance in any given period is unsatisfactory may be dropped from the College or placed on probation.

The I Grade The I grade, or Incomplete, may be given only when the student fails to take the final examination for a course. An instructor may decide that a student has done so poorly in the course that even a perfect grade in a make-up final examination could not raise the grade from F; in this case F is the proper grade, regardless of the missed final examination.

If the student fails to complete some other major portion of the course work (examination, quizzes,

major paper, etc.) a letter grade is assigned. This grade can be changed when the deficiency that led to the assigned letter grade is made up to the satisfaction of, and in the manner prescribed by, the instructor.

All deficiencies must be made up in the prescribed manner no later than twelve months following the recording of the grade. Students requesting an exception to this policy must petition the Academic Standing Committee of University College in writing. A student may also elect to repeat the course at his or her expense.

Pass-Fail Grades Satisfactory completion of work in all courses taken on a pass-fail basis will be designated on the transcript by the letter "S". Unsatisfactory work will be designated on the transcript by the letter "U". Any unsatisfactory grade must be handled according to the existing policy of University College, but may never be cleared by enrolling in the same course on the basis of the pass-fail system of grading.

An Incomplete in a course taken on a pass-fail basis will be designated by the letter "X" on the transcript and is treated according to the normal procedure for grades of Incomplete.

Dean's List All matriculated students who have taken a minimum of twenty-seven quarter hours in three consecutive quarters (Fall, Winter, Spring), and who have completed all their courses with a quality point average of 3.0 or better, shall be placed on the Dean's List. These students receive certificates of commendation from the Dean of University College. See page 24 for information about graduation with honor.

Attendance, Homework, and Examinations

Students are expected to attend all meetings of the classes in which they are registered unless excused in advance. Absence from regularly scheduled classes will seriously affect the student's academic standing. A student who is consistently absent from class will be withdrawn from the course by the Registrar.

Absence Because of Illness All students who are absent from school because of extended illness, and who do not wish to be withdrawn, should inform the Registrar's Office by letter.

Emergency Closing of the University Northeastern University has made arrangements to notify students, faculty, and staff by radio when it becomes necessary to cancel classes because of extremely inclement weather. Radio stations

WCOZ-FM, WBZ, WEEI, WHDH, WJDA, WVBF-FM, WBCN-FM, WCOP, WRKO, WLYN, WKOX, WHAV, WLLH, and WRBB will announce the University's decision to close.

Many University College classes meet in public and private schools. It may happen, therefore, that some satellite locations will be forced to close while others will not. When listening to radio announcements, students are advised to note the status of classes at their particular location.

Homework The specific work required for each course in University College is determined by the instructor. In general, it is expected that University College students will spend an average of six to eight hours per week outside of class on assignments for each course. Students who are absent are responsible for obtaining their homework assignments from their instructors or other students in their classes. Homework assignments are not available in the Office of Academic and Student Affairs.

Examinations Tests are scheduled throughout each quarter at the option of the instructor and are regarded as part of the term's course work. A final examination is held at the end of each quarter in each course unless an announcement is made to the contrary.

Missed Final Examinations A student who misses a final examination will be given a grade of I (Incomplete). A student does not automatically have the right to make up a missed final examination. Students must petition for this privilege and must pay a fee of \$5.00 for each make-up examination. The petition is filed in the Registrar's Office, 120 Hayden Hall, or in any off-campus administrative office. Petitions are available for two weeks after the term has ended. After submitting petitions, students will be notified as to the time and location of make-up examinations.

Miscellaneous Policies

Family Educational Rights and Privacy Act In accordance with the Family Educational Rights and Privacy Act of 1974, Northeastern University permits students to inspect their records whenever appropriate and to challenge specific parts of them when they feel it necessary. Specific details of the law as it applies to Northeastern are available in the Office of Academic and Student Affairs in 102 Churchill Hall.

Disciplinary Action The Committee on Regulations and Discipline has the authority to dismiss

from the College, place on probation, or remove from the list of degree candidates any student who, because of conduct or character, is considered an unsuitable member of the College community. The Committee on Regulations and Discipline is an *ad hoc* subcommittee of the University College Committee on Academic Standing. It is convened at the request of the Committee on Academic Standing.

Change of Address Change of address and/or name should be reported in writing immediately to the Registrar's Office, 120 Hayden Hall, Northeastern University, 360 Huntington Avenue, Boston, Massachusetts 02115.

Attendance at Commencement Attendance at commencement for all University College degree candidates is optional. Degree candidates will be polled regarding their intention to attend commencement by the Northeastern University Commencement Committee during the Spring quarter.

Changes in Requirements The continuing development of University College requires frequent revisions of the curricula. When no undue and unusual hardship is imposed on students because of these changes, students are expected to meet the requirements of the most current *Bulletin*. If a particular student finds it impossible to meet those requirements, the *Bulletin* for the year in which he or she first entered University College is binding.

Academic programs, course content, and rules and regulations are subject to change without notice.

Career and Academic Counseling Services

Through a wide variety of career and academic counseling services, University College is prepared to assist students in making both educational and career decisions. The College does this in several ways: by providing academic advisers and career counselors; by offering credit and noncredit career-planning workshops and special programs; and by serving as a link to other student support services offered by Northeastern University.

The services, courses, and programs outlined on the following pages have been designed with specific educational and/or career-planning issues in mind. Students are urged to read this section carefully.

New Student Open Houses

Individuals who are thinking about enrolling in University College for the first time are encouraged to attend an Open House. An Open House introduces potential students to the many University College programs and services designed to meet the educational, job-related, and personal needs of adult part-time students. The Open House also orients new students to the University as a whole, and addresses concerns that many students have about:

- choosing courses and registering
- securing financial aid
- obtaining career or personal counseling
- managing work, school, and family responsibilities

Persons interested in a degree program will have an opportunity to speak with advisers about matriculation requirements, transfer of credit from other colleges, and additional procedures for becoming a student at University College.

Open Houses are ordinarily scheduled each quarter at selected campus sites at or about the same time that registration takes place. Since space is limited, students are urged to express their interest in attending an Open House prior to any given registration period. (See the Academic Calendar on p. 6 for a complete registration schedule.) Persons wishing to attend an Open House should notify the Office of Academic and Student Affairs by telephoning 617-437-2400.

Academic Advisers

Academic advisers are available day and evening by appointment in the Office of Academic and Student Affairs. They are competent to assist students in planning a program suitable to their educational and career objectives. Advisers can also answer questions relating to degree requirements, course sequences, and proper scheduling of courses. Appointments may be arranged by telephoning the Office of Academic and Student Affairs at 617-437-2400, or by coming in person to 102 Churchill Hall at the Boston campus. There is no charge for this service.

Academic advisers are also available without appointment to answer general questions during registration periods at all campuses. Throughout the year, academic advisers are available by appointment at satellite campuses. All appointments are arranged through the Office of Academic and Student Affairs at the Boston campus, telephone 617-437-2400.

Career Counseling

Students in need of career counseling may telephone 617-437-2400 to arrange an appointment with a career counselor. This service is designed for students who need help in choosing a career or in developing effective job-hunting strategies. A career counselor will also explain to students and help them utilize additional services and programs offered by University College and by other offices at Northeastern University.

Self-Assessment and Career Development

One of the strongest motivations for continuing your education is the desire for career advancement or change. In order to help you develop career and educational planning skills, University College offers two three-credit courses in career development. Self-Assessment and Career Development 1 (90.401) is designed for persons who feel undecided about a career choice and who need help in defining career and educational objectives for themselves. Self-Assessment and Career Development 2 (90.402) is an advanced job-hunting skills course for persons who are sure of the career area in which they wish to pursue job opportunities. For complete descrip-

tions of these career development courses, see page 185.

Job-Search Seminars

Each quarter the Office of Academic and Student Affairs offers a series of Job-Search Seminars. The seminars are specifically designed for students who have identified the field or career area in which they would like to work. Students planning to participate should currently be looking for a job or be anticipating a job change in the near future.

These seminars are intended to help students assess their skills, define their immediate career directions, develop effective job-search strategies, write résumés, and prepare for job interviews. Seminars are two hours long and meet in four consecutive sessions. They are free to University College students. Seminar schedules are announced in the University College *Schedule Guides* and *Student Newsletters*. Students may also call 617-437-2400 to reserve a place in the seminars.

Cooperative Education Program

University College, in conjunction with Northeastern University's Division of Cooperative Education, has recently developed a cooperative education program for part-time students. Through this new program, University College students can benefit from a cooperative, work/study learning experience. The program has been designed for individuals who are not presently working or who are seeking work experiences that are more closely related to their current programs of study.

Cooperative education, pioneered by Northeastern University in 1909 and constantly refined since then, is designed to help students find jobs in the real world, where they may test their career interests and experience and the practical side of their field of study firsthand. Cooperative education enhances a student's overall educational experience in two important ways. Students enter into cooperative education positions with anticipation and energy, looking forward to the experience of a career-related assignment. As they learn what good grounding in theory and principle means on the job, students are better prepared to appreciate the substance of learning as it occurs in the classroom.

Goals of the University College Co-op Program

Most students attending University College are employed on a full- or part-time basis to support themselves and their families. Unfortunately, many University College students find themselves working in jobs that are unrelated to the specific job and career interests reflected in the programs of

study they have chosen to pursue. To help remedy this situation, the University College co-op program is focused on helping students enter jobs in work environments that are related to their particular fields of study. Co-op jobs are normally of nine to twelve months duration.

An important objective of the University College co-op program is to help each student find ways to use the work experience gained in a co-op job as a springboard to a more permanent position in the field or career area he or she has chosen. To help achieve this goal, each co-op student's overall performance will be evaluated by the student's employer and a Northeastern co-op coordinator. This evaluation will become part of the student's permanent University College record.

As part of their work assignments, co-op students will also be required to complete an on-the-job research assignment that will help them develop new skills and confidence in their chosen job or career areas. A positive evaluation of overall job performance and successful completion of an on-the-job learning assignment will, in general, greatly enhance a student's chances of securing a permanent position in his or her chosen field of work.

In addition to gaining work experience in a setting related to their field of study, students can benefit in other ways from the University College co-op program, including opportunities to:

- explore and select career areas consistent with their values, skills, interests, abilities, needs, personality traits, and preferred lifestyles.
- select an academic program appropriate for their vocational objectives.
- develop job-finding skills.
- enter the work force, re-enter the work force, make a career change, or gain upward career mobility.
- appreciate career planning as a lifelong process.

Further Information For a brochure containing further detailed information on the University College cooperative education program, including important deadlines, please call, 617-437-2413.

Core Career Courses for Women

University College offers a special group of personal assessment and career development courses for women interested in a business career. Through Core Career Courses, women learn to match their skills and competencies to those needed in specific career areas in business. This process, in turn,

helps a woman determine which specific jobs in business she is most suited to pursue. The Core Career Courses are also designed to acquaint women with the organizational dynamics of business settings and to help them develop a basic understanding of the quantitative and technical skills needed for various career areas in business.

A complete list of Core Career Courses may be found on page 185. All Core Career Courses are open to any interested student.

Counseling and Testing Services

Philip W. Pendleton, Director of the Counseling and Testing Center

Donald K. Tucker, Specialist in Adult Counseling

Location: 302 Ell Building

Telephone: 617-437-2142

Hours: Monday—Friday, 8:30 a.m.—4:30 p.m.
Tuesday, Wednesday, Thursday,
5:30 p.m.—8:30 p.m.

The Counseling and Testing Center at Northeastern provides a wide variety of services free of charge to all part-time students. Services for University College students include:

Personal Counseling This involves discussing with a counselor such concerns as adjusting to being a student (again or for the first time), getting along with people, feeling anxious or depressed, as well as problems centered around family, sex, drugs, or alcohol.

Educational-Vocational Counseling This involves assisting students in making decisions about choice of major and/or career. It typically involves an in-depth look at one's self, including strengths, aspirations, and values. Tests are often helpful in the process of self-understanding. The kinds of tests available include interest, ability, personality, and aptitude. This kind of planning is usually done individually, with a counselor, although small groups may be organized if this approach seems more appropriate.

The goals of the Center's educational-vocational planning service are complementary to those of the University College career-planning courses. Therefore, interested persons are encouraged to explore both as options for career exploration and planning and then choose the service that seems best suited to their needs.

Study Skills Workshops (Available during the day only) Workshops are offered periodically to assist students in becoming more effective in or-

ganizing their time, in note-taking, in preparing for and taking exams, and in other areas related to effective academic performance.

Career and Graduate School Information The Center maintains a reference room with information on a wide variety of careers and graduate and professional schools.

Placement

Northeastern's Department of Career Development and Placement provides a number of career-related services to all persons who are in their final year of study at the University. Among the services provided are programs of on-campus corporate recruiting, administration of graduate school admissions tests, a credential service for persons applying to graduate school, listings of job openings, as well as seminars and workshops on such practical job-hunting skills as preparing a résumé and learning how to conduct a successful interview.

For further information, including important deadlines and dates, students should visit the Office of Career Development and Placement in Room 133, Nightingale Hall, or call 617-437-2434.



Tuition and Fees

Tuition and fees are refundable only as stated under "Refund of Tuition." Checks and drafts for all charges are to be drawn to the order of Northeastern University.

Tuition for Courses in Other Departments or Colleges of the University

University College students assigned to courses in other departments or colleges of the University are charged the tuition rates and other fees effective in the departments or colleges in which they are enrolled.

Initial Registration Fee

A nonrefundable \$10.00 registration fee, required of all new students, is due and payable upon registration.

Tuition

Tuition for all credit courses is \$58 per quarter hour of credit. Charges for registration and tuition for special courses are at the rate specified for each course. Students are permitted to audit courses; there is no reduction in fees for auditing.

Noncredit courses are charged at quarter hour rates comparable to those of credit courses meeting on an equivalent contact hour schedule.

Students are not permitted to attend class sessions or take any examination or test until they have paid their tuition fees or have made satisfactory arrangements for payment.

Students will not be advanced in class standing or permitted to re-enroll in the University nor will degrees be conferred until all financial obligations to the University have been met.

No certificate of honorable dismissal will be issued to any student who has not fully met all financial obligations to the University.

Tuition Budget Payment Plans Occasionally situations develop—usually beyond the control of the student—which make it difficult to meet the payments in the manner outlined above. Under such circumstances the student is advised to discuss the problem personally at the Bursar's Office, where one of the budget plans or a deferred payment agreement may be worked out. Such arrangements should be made before the end of the first week of the quarter or within one week of

the date of registration if the student enters late. A charge of \$5.00 will be made. Failure to take immediate action will result in a late payment fee of \$50.00.

Tuition Underwritten by Employers An increasing number of companies are underwriting part or all of the cost of tuition of students in their employ. In cases where payment is to be made directly by the employer to the University, the student should furnish to the Bursar's Office a purchase order covering registration or a statement from an officer of the company certifying that the company is underwriting the tuition.

Veterans' Benefits Any veteran covered by Public Law 89-358 should report to Room 116 Hayden Hall to fill out the proper enrollment forms.

Late Payment Fee Bills for tuition and fees are payable in accordance with the due date shown. A late payment fee of \$50.00 may be charged to all students failing to comply unless special payment arrangements are approved by the Bursar's Office, 245 Richards Hall.

Refund of Tuition The general policy in all schools and colleges of the University with respect to refunds of tuition to students is as follows:

The University provides all instruction on an academic quarter basis for which students pay at the beginning of each quarter. Tuition refunds will be granted through the first four weeks of a quarter only when specific conditions are met. Questions regarding refunds should be discussed with the Bursar.

Tuition refunds will be granted only on the basis of the date appearing on the official withdrawal application when filed with the Registrar in Room 120 Hayden Hall. Non-attendance does not constitute official withdrawal.

Refunds will be granted in accordance with the following schedule:

Official withdrawal filed within	Percentage of tuition
1st week of quarter	100%
2nd week of quarter	75%
3rd week of quarter	50%
4th week of quarter	25%

Fees

Student Center Fee All students in University College on the Huntington Avenue campus are charged \$.75 each quarter for the services available in the Student Center.

Laboratory Fee All students enrolled in biology or health professions courses that include laboratory must purchase from the Bursar's Office a Laboratory Fee and Deposit Card for \$15.00 (\$5.00 for extra cards). For chemistry, the cards cost \$20.00 per quarter with the possibility of a \$5.00 refund at the end of the quarter, depending upon breakage. The fee for arts and crafts courses is \$5.00. Upon completion of the course or withdrawal during the quarter, the student must check his or her status with the laboratory attendant. The Bursar's Office will then refund any unused balance shown on the Laboratory Fee and Deposit Card.

In certain Hotel and Restaurant Management courses there is a laboratory fee. For Food and Beverage Management the fee is \$15.00, and for Food Preparation the fee is \$20.00 per quarter. Law Enforcement students who enroll in Forensic Laboratory (94.379) will be charged a fee of \$6.00.

Graduation Fee The University graduation fee, charged to those who are candidates for the baccalaureate or associate degree, is \$25.00, payable on or before May 1 of the year in which the student expects to graduate.

Missed Final Examination Fee Students absent from the regularly scheduled final examination at the end of a course may petition for a "Missed Final Examination." The fee for each examination requested by the student is \$10.00. The fee must be paid when the petition is filed in the University Registrar's Office.

Transcripts

Students may request transcripts of their grades at the Registrar's Office. There is a charge of \$2.00 per copy payable in advance.

Financial Aid and Scholarships

General information pertaining to financial aid opportunities and specific scholarship applications for part-time students is available in the University College Office of Academic and Student Affairs, Room 102 Churchill Hall.

The following scholarships and awards are available to students enrolled in University College and Lincoln College. Applications for scholarships administered by University College are available during the Winter quarter. The final selections of scholarship recipients are usually determined in late May, followed by the awarding of the scholarship in June.

Scholarships

Professor Joseph A. Mullen Scholarships The Massachusetts Chapter of the American Society for Training and Development has established a fund to provide annual scholarship awards to deserving part-time students upon the recommendation of the Dean of University College.

Martin Luther King Jr. Scholarships Established in 1969 in memory of the late Rev. Martin Luther King Jr., Awards are made, as openings occur, to a limited number of adults from minority groups who would otherwise be unable to continue their education. Stipends can cover tuition expenses not to exceed six quarter hours in any academic quarter (excluding Summer quarter).

Kappa Tau Phi Scholarships The Kappa Tau Phi Sorority Scholarship Fund annually makes available scholarship awards. They are granted to women students in the arts and sciences, business, and engineering programs, respectively, who rank highest at the end of the upper-middle year. In the event the student is eligible for an award of greater monetary value, the award will be made to the next highest-ranking woman student. To be eligible for this scholarship, the student must be enrolled in a program of at least two evenings per week and must be a candidate for the bachelor's degree. In determining the recipient, grades of all courses completed in prior years shall be considered.

Harry Olins Memorial Scholarship The Harry Olins Memorial Scholarship Fund was established as an expression of firm belief in University Col-

lege students and what they stand for. The fund, presented by Mrs. Harry Olins in recognition of her husband's long service on the business faculty, makes available an annual tuition award to students who, in terms of scholastic achievement, character, and personal need, best typify the spirit of Northeastern University.

To be eligible for this award, the student must be a business administration degree candidate and carry a full academic load during the school year.

William J. McGovern Memorial Scholarship

The William J. McGovern Memorial Scholarship was established in 1978 by an anonymous donor to honor the memory of William J. McGovern. The donor wishes to assist others in realizing their potential through higher education. The income from this scholarship will benefit worthy undergraduate students actively pursuing studies in University College or Lincoln College. Recipients must be in a matriculated status, demonstrate financial need and academic achievement, and must exhibit a high level of professional promise.

Eva Needle Memorial Scholarship The Eva Needle Memorial Scholarship Fund was established in 1965 with the aid of the Norman Knight Charitable Foundation and is maintained through the generosity of the friends of Bob and Ted Needle in memory of their mother. The income from the Scholarship Fund is awarded annually to a deserving student in the accounting program who demonstrates superior academic achievement. The recipient is selected jointly by Ted Needle, a long-standing member of the University College accounting faculty, and the Scholarship Committee.

H. Patricia Taylor Scholarship Fund The H. Patricia Taylor Scholarship Fund was established in 1974 by H. Patricia Taylor, a graduate of University College, and her husband, Harry C. Taylor, a graduate of the School of Business. The scholarship expresses their appreciation for financial assistance made available to Mrs. Taylor while obtaining her degree, and is an attempt to provide similar funds to assist others in realizing their potential through higher education. The income from

the scholarship fund will be awarded annually to a student enrolled in University College or Lincoln College who demonstrates financial need and academic stability and who meets certain other conditions of eligibility.

University and Lincoln College Faculty Society Memorial Scholarship Awards The Faculty Society of University and Lincoln Colleges, Northeastern University, offers two awards annually, primarily for excellence in studies, to bachelor's degree candidates in University and Lincoln Colleges who have carried, and are currently carrying, a minimum of 24 quarter hours annually. Applications, available during the Winter quarter, must be returned before the Spring quarter.

These awards shall be known as University and Lincoln College Faculty Society Club Memorial Scholarship Awards in commemoration of the Club's deceased members.

U.S. Navy Field Training Supervisors Association Memorial Scholarship A scholarship fund has been established through the generosity of the United States Navy Field Training Supervisors Association, in commemoration of the Association's deceased members. The scholarship is awarded annually to a deserving student selected by the Scholarship Committee, who is a management major, working toward a Bachelor of Science degree in the evening program of University College.

Roberta Macycove Wasserman Memorial Scholarship This scholarship was established in 1976 through the generosity of family members and friends of Roberta Macycove Wasserman who, at the time of her death in 1975, was pursuing arts and sciences studies within University College. The income from the Memorial Scholarship Fund is awarded annually to a deserving female student who is a homemaker with family responsibilities and who is pursuing part-time studies within University College. The recipient shall demonstrate financial need, soundness of character and academic stability.

Sigma Epsilon Rho Honor Society Scholarship Award The Sigma Epsilon Rho Honor Society Scholarship Award, established in 1974 by the membership of the Society, is awarded annually to an undergraduate student of University and or Lincoln College at Northeastern University. Eligible students must have a cumulative quality point average of 3.0 or better after completing 80 percent or more of their required studies.

Transportation Club of New England Scholarship The Transportation Club of New England provides approximately eight scholarships annually for persons employed in transportation and industry traffic departments. The scholarships are applicable toward tuition, books, and incidental expenses involved in transportation management courses. The purpose of the plan is to afford a limited number of people an opportunity to expand and improve their education by systematized study in courses in the field of transportation and distribution management. The scholarships are administered cooperatively with the Scholarship Committee of the Transportation Club of New England. Applications may be secured from and filed with the Secretary, Transportation Club of New England, 150 Causeway Street, Boston, Mass. 02114. Each applicant must be sponsored by a member of the Transportation Club.

Electronics Industries Personnel Association Scholarship This Scholarship was established in 1980 through the generosity of the Electronics Industries Personnel Association. The income is awarded annually to one or more students enrolled and matriculated in the Personnel and Industrial Relations program in University College. Recipients shall demonstrate financial need, soundness of character, and academic stability.

Financial Aid

The Office of Financial Aid, located in 254 Richards Hall, offers several types of assistance to part-time students. All awards are based on financial need. Aid granted from programs sponsored by the Federal government is dependent upon the amount of funding allocated to Northeastern University. The University does not award financial assistance in any form to students who are not citizens or permanent residents of the United States.

Basic Educational Opportunity Grant (BEOG) The Basic Educational Opportunity Grant Program is a Federal aid program designed to provide financial assistance to degree candidates who need it to attend post-high school educational institutions. Basic Grants are intended to be the "floor" of a financial aid package and may be combined with other forms of aid in order to meet the full costs of education. BEOG is a grant and, unlike a loan, does not have to be repaid. Half-time students taking at least six credit hours each quarter may now apply for awards ranging up to one-half the maximum allowable by law contingent upon the total cost of education. Applications are

available in the Office of Financial Aid, 254 Richards Hall, or by writing to BEOG, Post Office Box 84, Washington, D.C. 20044.

Massachusetts State Scholarship Massachusetts residents enrolled as full-time students (i.e., 12 credit hours per quarter for fall, winter and spring) may be eligible for a Massachusetts State Scholarship. To apply, students must submit a Massachusetts Financial Aid Form (MFAF) for residents of Massachusetts. The deadline date for applications is March 1. Massachusetts State Scholarships are awarded based on need as determined by the Massachusetts Financial Aid Form.

National Direct Student Loan This program is available to students who are carrying a full-time academic workload, are accepted as degree candidates, i.e., have 18 credit hours and a matriculation certificate, and who show evidence of financial need.

Students may borrow as much as \$1,500 each academic year, up to the maximum of \$6,000 for their undergraduate education, or a total of \$12,000 through the completion of graduate studies. Repayment and interest on these loans do not begin until six months after the student ceases to carry at least a half-time academic load at an institution of higher education. The repayment of principal may be extended over a ten-year period with the interest at the rate of 4% per annum. Repayment may be deferred up to a total of three years while a borrower is serving as a Peace Corps or VISTA volunteer.

Borrowers who elect to teach the disadvantaged or handicapped may qualify for cancellation of their entire obligation at the rate of 15% per year of teaching service. A borrower serving as a full-time member of the Armed Services of the United States is entitled to cancel 12% per annum of the principal outstanding on any loans, for each year of such service, up to a maximum cancellation of 50%.

Guaranteed Student Loan Program Students may apply for a loan if they are citizens or nationals of the United States and are enrolled, or have been accepted for enrollment at least half-time in an institution of higher education. All students are eligible for Federal interest benefits. Under these benefits, the Federal government will pay the interest on the loan until the student begins repaying the loan.

The legal maximum loan available through the Guaranteed Student Loan Program for any single

academic year is \$2,500 for dependent undergraduates, and \$3,000 for independent undergraduates. Part-time students may borrow up to one-half of these amounts for any single academic year. The maximum loan for an entire undergraduate program is \$12,500 for dependent students, and \$15,000 for independent students.

The Office of Financial Aid cannot process bank loan applications until six weeks after the quarter has begun. This policy is necessary in order to insure that proper enrollment verification (at least six quarter hours) can be made.

Repayment of 7% Guaranteed Student Loans begins nine months after a student withdraws or graduates from an educational institution, or ceases to carry at least half a full-time course load. For students who are not currently participating in the Guaranteed Student Loan Program and will be enrolling for the first time in January, 1981 or thereafter, the interest rate will be 9%. Repayment of 9% Guaranteed Student Loans begins six months after a student withdraws or graduates from an educational institution or ceases to carry at least half a full-time course load.

Additional information about financial aid is available from the Office of Financial Aid, 254 Richards Hall, telephone 617-437-3190.



Student Activities

Student activities for part-time students are planned, organized, and operated by the student body with the assistance of the Director of University-Lincoln College Student Activities. The programs are designed to keep pace with the changing needs of adult students and to provide maximum opportunity for student participation. All part-time students in University College and Lincoln College are welcome to participate.

The program is flexible in nature and pioneering in spirit to meet the needs of adult students. The Office of University-Lincoln College Student Activities is particularly interested in developing new clubs that will benefit students professionally and educationally. If students wish to start clubs related to their professions, this office will help them plan and organize clubs on the local and national levels. The program is dedicated to assisting the adult student in the development of his or her fullest potential. The University-Lincoln College Student Activities Office is located in 102 Church Hall.

Purpose

The purposes of part-time student activities are to provide opportunities for the development and pursuit of cultural interests and professional objectives; to encourage the development of leadership activities and skills; to enable the student to identify more closely with the University; to include the family as an important and vital motivating force in the part-time student's educational career.

Sigma Epsilon Rho Honor Society

Sigma Epsilon Rho is the honor society of University College. Its purposes are to promote acquaintance and good fellowship among those students who have attained highest scholastic standing in the College; to stimulate the student body to higher scholastic accomplishment through the bearing influence and work of these selected men and women; to develop methods of mutual improvement and advancement among members; to support high moral, professional, and scholastic ideals.

Only honor graduates or seniors with honor standing at the end of the junior year are eligible for admission to the society. Admission is by invitation after nomination by the society.

An outstanding book is awarded each year by Sigma Epsilon Rho Society to the highest-ranking

student at the conclusion of the junior year. Students will receive the award only in the event that they enroll for the subsequent year.

Lambda Alpha Epsilon

Lambda Alpha Epsilon is a national law enforcement fraternity founded in 1957. The Northeastern Chapter, Kappa Phi Beta, is open to part-time and day students enrolled in law enforcement, security and correctional practices programs, and to professional men in the fields of law, enforcement and security. The fraternity is dedicated to the furtherance of professional standards in law enforcement.

Dean's Advisory Council

The Dean's Advisory Council consists of students appointed by the Dean of the College and represents the student body of University College encompassing all campuses. The purpose of the Council is to offer advice to the Dean of University College in an effort to improve services offered to the adult student population. The Council acts as an informal liaison between the student body and the administration of University College and is charged with providing input, feedback, and recommendations to the Dean.

Students are encouraged to communicate with the Dean's Advisory Council by submitting written correspondence directed to: Dean's Advisory Council, Northeastern University, 360 Huntington Avenue, 102 Church Hall, Boston, Massachusetts 02115.

Use of Gymnasium Facilities

Part-time students may utilize the gymnasium facilities during the hours 4:30-9:30 p.m. Monday through Friday, and during all open hours on Saturday, Sunday, and holidays. A valid Northeastern student identification card must be presented to gain access to the facilities.

Specific schedules for use of the pool, Universal Weight room, indoor track and Gage gymnasium, gymnastics room, and wrestling room are available at the beginning of each quarter in the Intramural Sports Office, Room 114 Cabot.

Part-time students do not have guest privileges or racquetball sign-up privileges.

Alumni Association

More than 86,000 alumni are united within an Alumni Association, created to establish a mutually beneficial relationship between Northeastern and its graduates. The Association is governed by an Executive Committee elected from the alumni community. Membership in the Association is automatic upon graduation.

The Association is headquartered in the Office of Alumni Relations in 310 Churchill Hall. The official records and addresses of alumni are maintained in the Office of Alumni Records, Room 260 Nightingale Hall.

Activities of the Association include the Homecoming celebration, presentation of the Outstanding Alumni Awards, and the annual presentation of Professional Promise Awards to outstanding seniors in each of the Colleges. Alumni officers are also involved in establishing diverse enrichment and education programs to meet the contemporary vocational and avocational needs of Northeastern's graduates. The Alumni Association has also initiated a successful group travel program to provide the alumni of Northeastern with interesting, economical opportunities in foreign travel. Notice of all activities is provided in *Northeastern Today*, the alumni magazine, and in special publications.

Regional alumni clubs have been established from coast to coast. All alumni are eligible to become members of these organizations. The clubs meet periodically with a varied program, often in conjunction with professional and athletic events, faculty visits, and service projects. Additionally, alumni class organizations conduct reunions for their respective classes every five years.

The Association sponsors and assists constituent organizations that focus on common professional and avocational interests and college affiliations. These groups have their own officers and conduct various programs throughout the year.

The Alumni Association provides a valuable service to the University and the community by sponsoring regional admissions conferences for high school students and the parents of students who are interested in attending college. These meetings, held in cooperation with the Northeastern University Office of Admissions, are extremely well attended.

In addition, alumni volunteers in many metropolitan areas across the nation represent the Admissions Office on a continuing basis at high schools and community colleges.

Programs of Study

University College conducts part-time educational programs at the undergraduate level during day and evening hours. The programs are designed to help meet the varying needs and interests of adult students who may enroll as students following degree programs or as nondegree students taking single courses or special programs

University College programs leading to the Bachelor of Science and Bachelor of Arts degrees help provide opportunities for cultural and professional development equivalent in quality and scope to those offered in the conventional four-year college enrolling full-time students. The bachelor's degree requires 174 quarter hours of credit

Programs leading to the Associate in Science degree help provide students with a background in fundamental areas in business administration, arts and sciences, law enforcement, health professions, and therapeutic recreation services. The Associate degree requires 96 quarter hours of credit and is equivalent to the conventional two-year or junior college in scope and quality.

Degree curricula are offered in the following areas:

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Course descriptions are listed in numerical order by department beginning on page 121.

Business Administration

Paul D. Maxwell, Associate Dean
Director, Business Administration Programs
Telephone 437-2418

Aims

Business Administration programs are offered to help meet the needs of adult men and women wishing to acquire a college education on a part-time basis. The opportunity to achieve professional competence in a chosen field, while developing potential for further managerial growth, is one of the program's principal objectives. Degree programs are designed to create both a breadth of perspective and a degree of specialization. Breadth of perspective may be obtained through exposure to a well-balanced sequence of arts and sciences courses, which emphasizes fundamental economic laws and the social and cultural foundations of our changing society. Specialized knowledge for future managerial growth may be acquired through the study of basic business courses, in addition to a self-determined study of a major business area.

Requirements

Associate in Science Degree The Associate in Science degree is offered in the following fields of study: Business Administration, Electronic Data Processing, Hotel and Restaurant Management, Purchasing, Real Estate, and Transportation and Physical Distribution Management. To qualify for the associate degree, 96 quarter hours must be successfully completed in one of the five associate programs. Detailed information on these programs, together with a recommended sequence for completing them, appears on the following pages.

Upper-level Courses In an effort to achieve a certain level of analytic and academic sophistication among students taking upper-level business administration courses (designated by an asterisk wherever they appear in the catalog) all new students are required to successfully complete an appropriate associate degree program before becoming eligible to take upper-level business administration courses. Special students (students not pursuing a degree program) may take upper-level courses if they can demonstrate to a program adviser (always present during registration) or to one of the deans in University College that they have an adequate background to

cope with upper-level course content. In determining whether a student has "an adequate background," the program advisers and the deans will evaluate, but not be limited to, such factors as work experience, former college work, and independent study.

The Bachelor of Science Degree The Bachelor of Science degree in Business Administration is offered in the following fields of study: Accounting, Finance, Hotel and Restaurant Management, Industrial Management, Industrial Technology, Management, Management Information Systems, Marketing, Personnel and Industrial Relations, Transportation and Physical Distribution Management, and the Combined Program in Arts and Sciences and Management.

The "appropriate" program for all bachelor's degree students, except Hotel and Restaurant Management, Management Information Systems, and Transportation and Physical Distribution Management, is the associate degree program in Business Administration.

The "appropriate" associate degree program for the Hotel and Restaurant Management degree is the associate degree program of the same title.

The "appropriate" program for the MIS degree student is the associate degree program in Electronic Data Processing (EDP); the associate degree program in Transportation and Physical Distribution Management is the associate degree program of the same title.

Students pursuing one of the other associate programs or students pursuing an "inappropriate" associate program may make special arrangements with the Dean of Administration and the Director of Business Programs for a bachelor's program.

A student with a 2.0 average or better in an associate degree program will be considered by University College as having "successfully completed" the program. It should be noted that students do not have to formally *receive* associate degrees; successful completion of the associate degree program (or demonstration of an "adequate background" in the case of special students) is all that is necessary for entry into upper-level business administration courses.

English Requirements English requirements

shall be completed by either taking English 1, 2, 3 or already having received credit for a minimum of 9 quarter hours of English credits. Students should contact the Office of Academic and Student Affairs 437-2400, to ensure their status regarding the fulfillment of this requirement.

Single Quarter Intensives Many courses are offered as single quarter intensives during the school year. Please refer to the current *Schedule of Courses and Registration Guide* for details.

Business Administration (Major Code 401)**Associate in Science Degree****Basic Courses—Arts and Sciences**

quarter hours

10.627	10.628	10.629	Mathematics 1, 2, 3	9
19.301	19.302	19.303	Psychology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
39.301	39.302	39.303	Economic Principles & Problems 1, 2, 3	9
39.311	39.312	39.313	Statistics 1, 2, 3	9

Applied Courses

49.310	49.311	Electronic Data Processing 1, 2	6
49.320		COBOL for Non-Programmers	3
49.400	49.401	Human Relations 1, 2	6
49.420	49.421	Labor Relations 1, 2	6

Basic Courses—Business Administration

41.301	41.302	Accounting Principles 1, 2	6
43.301		Introduction to Marketing 1	3
44.301		Introduction to Financial Management	3
45.301		Management & Organization 1	3
45.400		Production Management and Manufacturing Systems 1	3

Electives

12

Total Credits

96

Recommended course sequence for the three-year program leading to the Associate in Science Degree:

	Quarter 1	Quarter 2	Quarter 3
First Year	English 1 Accounting 1 Human Rel. 1 Mgmt. & Org. 1	English 2 Accounting 2 Human Rel. 2 Elective	English 3 Elective Elective Intro. to Fin. Mgmt.
Second Year	Economics 1 Math 1 EDP 1 Elective	Economics 2 Math 2 EDP 2 Elective	Economics 3 Math 3 COBOL Prod. Mgmt. 1
Third Year	Psychology 1 Statistics 1 Intro. to Mktng. 1	Psychology 2 Statistics 2 Labor Rels. 1	Psychology 3 Statistics 3 Labor Rels. 2

Electronic Data Processing (Major Code 452)

Associate in Science Degree

quarter hours

Basic Courses—Arts and Sciences

10.627	10.628	10.629	Mathematics 1. 2. 3	9
29.301	29.302		Effective Speaking 1. 2	6
39.301	39.302	39.303	Economic Principles & Problems 1. 2. 3	9
30.305	30.306	30.307	English 1. 2. 3	9
39.311	39.312	39.313	Statistics 1. 2. 3	9

Applied Courses

10.632	10.633		Mathematics for Business 1. 2	6
45.306			Project Planning & Control	3
49.310	49.311		Electronic Data Processing 1. 2	6
49.321	49.322	49.323	COBOL Programming 1. 2. 3	9

Major Concentration Courses

41.301	41.302		Accounting Principles 1. 2	6
45.301	45.302		Management & Organization 1. 2	6
49.360	49.361	49.362	Systems Analysis and Design 1. 2. 3	9

Electives

9

Total Credits

96

Additional departmental offerings appear on pages 171 through 174.

Recommended course sequence for the three-year program leading to the Associate in Science Degree:

	Quarter 1	Quarter 2	Quarter 3
First Year	English 1 Accounting 1 Mgmt. & Org. 1 EDP 1	English 2 Accounting 2 Mgmt. & Org. 2 EDP 2	English 3 Elective Elective Proj. Planning
Second Year	Economics 1 Math 1 Sys. Analysis 1 COBOL 1	Economics 2 Math 2 Sys. Analysis 2 COBOL 2	Economics 3 Math 3 Sys. Analysis 3 COBOL 3
Third Year	Effective Spking. 1 Statistics 1 Math. for Bus. 1	Effective Spking 2 Statistics 2 Math. for Bus 2	Elective Statistics 3 Elective

Hotel and Restaurant Management (Major Code 472) Associate in Science Degree

Basic Courses—Arts and Sciences

quarter hours

10.627	10.628	10.629	Mathematics 1, 2, 3	9
19.301	19.302	19.303	Psychology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
39.301	39.302	39.303	Economic Principles & Problems 1, 2, 3	9
39.311	39.312	39.313	Statistics 1, 2, 3	9

Applied Courses

49.310	49.311	Electronic Data Processing 1, 2	6
49.400	49.401	Human Relations 1, 2	6
49.420	49.421	Labor Relations 1, 2	6

Basic Courses—Business Administration

41.301	41.302	Accounting Principles 1, 2	6
45.301		Management & Organization 1	3

Major Concentration Courses

47.400	47.401	Introduction to Hotel & Restaurant Management 1, 2	6
47.403		Food & Beverage Management	3
47.404		Managerial Accounting for the Hospitality Industry	3
47.405		Management Systems for the Hospitality Industry	3

Electives 9

Total Credits 96

Recommended course sequence for the three-year program leading to the Associate in Science Degree:

	Quarter 1	Quarter 2	Quarter 3
First Year	English 1 Accounting 1 Mgmt. & Org. 1 Intro. to Mgmt. 1	English 2 Accounting 2 EDP 1 Intro. to Mgmt. 2	English 3 Managerial Acctng. EDP 2 Food & Bev. Mgmt
Second Year	Economics 1 Math 1 Human Relations 1 Mgmt. Systems	Economics 2 Math 2 Human Relations 2 Elective	Economics 3 Math 3 Elective Elective
Third Year	Statistics 1 Labor Relations 1 Psychology 1	Statistics 2 Labor Relations 2 Psychology 2	Statistics 3 Elective Psychology 3

Purchasing (Major Code 432)**Associate in Science Degree**

quarter hours

Basic Courses—Arts and Sciences

10.627	10.628	10.629	Mathematics 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
39.301	39.302	39.303	Economic Principles & Problems 1, 2, 3	9
39.311	39.312	39.313	Statistics 1, 2, 3	9

Applied Courses

49.310	49.311	Electronic Data Processing 1, 2	6
49.400	49.401	Human Relations 1, 2	6

Basic Courses—Business Administration

41.301	41.302	Accounting Principles 1, 2	6
43.301		Introduction to Marketing 1	3
44.301		Introduction to Financial Management	3
45.301		Management & Organization 1	3
45.400		Production Management & Manufacturing Systems 1	3

Major Field of Study

45.410		Production Control & Inventory Management 1	3
45.414		Materials Management	3
45.451	45.452	Purchasing 1, 2	6
45.457		The Art and Technique of Negotiation in Business	3
45.458		Materials Requirement Planning	3
45.459		Subcontract Management	3
49.385		Principles of Materials Inspection	3

Electives

6

Total Credits

96

Additional departmental offerings appear on pages 167 through 168.

Recommended course sequence for the three-year program leading to the Associate in Science Degree:

	Quarter 1	Quarter 2	Quarter 3
First Year	English 1 Math 1 Accounting 1 Mgmt & Org	English 2 Math 2 Accounting 2 Prod. Mgmt 1	English 3 Math 3 Intro. to Mktng. 1 Intro. to Fin. Mgmt
Second Year	Economics 1 Purchasing 1 Human Rels 1 EDP 1	Economics 2 Purchasing 2 Human Rels 2 EDP 2	Economics 3 Matls Req Plan Elective Matls. Mgmt
Third Year	Statistics 1 Subcontract Mgmt Prod. Control	Statistics 2 Neg. Bus Matls Insp	Statistics 3 Elective Elective

Real Estate (Major Code 471)**Associate in Science Degree****Basic Courses—Arts and Sciences**

quarter hours

10.627	10.628	10.629	Mathematics 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
39.301	39.302	39.303	Economic Principles & Problems 1, 2, 3	9
39.311	39.312	39.313	Statistics 1, 2, 3	9

Applied Courses

49.301	49.302	Law 1, 2	6
49.400	49.401	Human Relations 1, 2	6

Basic Courses—Business Administration

41.301	41.302	Accounting Principles 1, 2	6
44.301		Introduction to Financial Management	3
45.301		Management & Organization 1	3

Major Concentration Courses

47.320	47.321		Real Estate Fundamentals 1 2	6
47.323	47.324	47.325	Real Estate Appraisal 1 2 3	9
47.328	47.329		Real Estate Financial Analysis 1 2	6
			Departmental Offerings	9

Electives	6
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Total Credits	96
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Additional departmental offerings appear on page 168.

Recommended course sequence for the three-year program leading to the Associate in Science Degree:

	Quarter 1	Quarter 2	Quarter 3
First Year	English 1 Math 1 Accounting 1 R.E. Funds. 1	English 2 Math 2 Accounting 2 R.E. Funds. 2	English 3 Math 3 Mgmt. & Org. 1 R.E. Title Exam
Second Year	Economics 1 Human Relis. 1 R.E. Appr. 1 Law 1	Economics 2 Human Relis. 2 R.E. Appr. 2 Law 2	Economics 3 Intro. to Fin. Mgmt. R.E. Appr. 3 Elective
Third Year	Statistics 1 R.E. Anal. 1 Elective	Statistics 2 R.E. Anal. 2 Elective	Statistics 3 R.E. Development Elective

Trans. and Physical Distribution Mgmt. (Major Code 483) Associate in Science Degree
quarter hours

Basic Courses—Arts and Sciences

10.627	10.628	10.629	Mathematics 1. 2. 3	9
30.305	30.306	30.307	English 1. 2. 3	9
39.301	39.302	39.303	Economic Principles & Problems 1. 2. 3	9
39.311	39.312	39.313	Statistics 1. 2. 3	9

Applied Courses

49.400	49.401	Human Relations 1. 2	6
49.420	49.421	Labor Relations 1. 2	6

Basic Courses—Business Administration

41.301	41.302	Accounting Principles 1. 2	6
43.301		Introduction to Marketing 1	3
44.301		Introduction to Financial Management	3
45.301	45.302	Management & Organization 1. 2	6

Major Concentration Courses

48.301		Elements of Transportation	3
48.302		Physical Distribution Management	3
48.305	48.306	Traffic Management 1. 2	6
48.307		Contemporary Issues in Transportation & Distribution	3
48.320	48.321	Transportation Regulation 1. 2	6
48.316		Carrier Management	3

Electives	6
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Total Credits	96
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Additional departmental offerings appear on pages 170 through 171.

Recommended course sequence for the three-year program leading to the Associate in Science Degree:

	Quarter 1	Quarter 2	Quarter 3
First Year	English 1 Math 1 Accounting 1 Mgmt. & Org. 1	English 2 Math 2 Accounting 2 Mgmt. & Org. 2	English 3 Math 3 Intro. to Mktng. 1 Elms. of Transportation
Second Year	Economics 1 Human Relations 1 Physical Dist. Mgmt. Trans. Reg. 1	Economics 2 Human Relations 2 Labor Rels. 1 Trans. Reg. 2	Economics 3 Intro. to Fin. Mgmt. Labor Rels. 2 Elective
Third Year	Statistics 1 Traffic Mgmt. 1 Carrier Mgmt.	Statistics 2 Traffic Mgmt. 2 Elective	Statistics 3 Contemporary Issues Elective

Accounting (Major Code 410)**Bachelor of Science Degree**

Associate Degree in Business Administration	quarter hours
	96

Core Courses—Arts and Sciences

21.301	21.302	21.303	Sociology 1, 2, 3	9
29.301			Effective Speaking 1	3

Applied Courses

49.301	49.302	Law 1, 2*	6
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Major Concentration Courses

41.401	41.402	41.403	Intermediate Accounting 1, 2, 3*	9
41.405	41.406		Cost Accounting 1, 2*	6
41.407			Advanced Accounting 1*	3
41.410	41.411		Seminar in Contemporary Problems 1, 2*	6

Electives	36
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Total Credits	174
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Additional departmental offerings appear on pages 160 through 161

*Upper-level course—see page 43.

Finance (Major Code 440)**Bachelor of Science Degree**

quarter hours

Associate Degree in Business Administration

96

Core Courses—Arts and Sciences

21.301	21.302	21.303	Sociology 1, 2, 3	9
29.301	29.302		Effective Speaking 1, 2	6
30.311			Business Writing & Reports 1	3

Applied Courses

49.301	49.302	Law 1, 2	6
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Major Concentration Courses

44.310	44.311	Financial Management 1, 2*	6
44.312	44.313	Investments 1, 2*	6
		Departmental Offerings	12

Electives

30

Total Credits**174****Specialization track recommendations: Corporate Financial Management**

44.314	44.315	Credit Management 1, 2*	6
44.316	44.317	Profit Planning & Control 1, 2*	6
44.320		Advanced Financial Management*	3
44.323		Seminar in Finance*	3
44.328	44.329	International Finance 1, 2*	6

Specialization track recommendations: Investment Management

44.318	44.319	Management of Financial Institutions 1, 2*	6
44.320		Advanced Financial Management*	3
44.322		Advanced Investment Management*	3
44.324		Seminar in Investments*	3
44.325	44.326	Personal Financial Management 1, 2*	6

Specialization track recommendations: Management of Financial Institutions

44.318	44.319	Management of Financial Institutions 1, 2*	6
44.314	44.315	Credit Management 1, 2*	6
44.322		Advanced Investment Management*	3
44.324		Seminar in Investments*	3
44.325	44.326	Personal Financial Management 1, 2*	6

Additional departmental offerings appear on pages 163 through 164.

*Upper-level course—see page 43.

Hotel and Restaurant Management (Major Code 473)				Bachelor of Science Degree
				quarter hours
Associate Degree in Business Administration				96
Core Courses—Arts and Sciences				
19.332	19.333		Industrial Psychology 1, 2	6
21.301	21.302	21.303	Sociology 1, 2, 3	9
29.301			Effective Speaking 1	3
30.311			Business Writing & Reports 1	3
Applied Courses				
49.301	49.302		Law 1, 2	6
Basic Courses—Business Administration				
43.301			Introduction to Marketing 1	3
44.301			Introduction to Financial Management	3
45.303			Principles & Practices of Management	3
Major Concentration Courses				
Select 15 quarter hours:				
47.406			Front Office Management	3
47.407			Hotel & Restaurant Law	3
47.408			Hospitality Marketing Management	3
47.409			Design & Layout	3
47.410	47.411		Food Preparation 1, 2	6
47.412			Food Service Engineering & Sanitation	3
47.415	47.416		Seminar in Hotel & Restaurant Management 1, 2	6
47.417			Food and Beverage Cost Control	3
47.422			Food Science and Technology	3
Electives				27
Total Credits				174

Additional departmental offerings appear on page 169.

Industrial Management (Major Code 420)**Bachelor of Science Degree**

quarter hours

Associate Degree in Business Administration

96

Core Courses—Arts and Sciences

10.632	10.633	Math for Business 1. 2	6
16.311		History of Ancient World Sciences and Technologies	3
16.312		History of Modern World Sciences and Technologies	3
19.332	19.333	Industrial Psychology 1. 2	6
29.301	29.302	Effective Speaking 1. 2	6
30.311	30.312	Business Writing & Reports 1. 2	6

Applied Courses

45.315		Effecting Change	3
49.301	49.302	Law 1. 2	6

Major Concentration Courses—Students specializing in Quality Control Management

45.403		Manufacturing Processes*	3
45.404		Value Management*	3
45.411	45.412	Industrial Decision Making 1. 2*	6
45.413		Manufacturing Seminar*	3
49.385		Material Inspection*	3
49.388		Principles of Quality Assurance	3
		Elective	3

Major Concentration Courses—Students specializing in Operations Management

45.403		Manufacturing Processes*	3
45.404		Value Management*	3
45.405		Industrial Safety*	3
45.406		Methods Analysis, Time and Motion Study*	3
45.407		Operations Management*	3
45.411	45.412	Industrial Decision Making 1. 2*	6
45.413		Manufacturing Seminar*	3

Major Concentration Courses—Students specializing in Materials Management

45.404		Value Management*	3
45.410		Production Control & Inventory Management	3
45.411	45.412	Industrial Decision Making 1. 2*	6
45.413		Manufacturing Seminar*	3
45.414		Materials Management	3
45.451	45.452	Purchasing 1. 2	6

Major Concentration Courses—Students specializing in Manufacturing Administration

41.303		Accounting Principles 3	3
45.306		Project Planning & Control*	3
45.403		Manufacturing Processes*	3
45.406		Methods Analysis, Time & Motion Study*	3
45.411	45.412	Industrial Decision Making 1. 2*	6
45.413		Manufacturing Seminar*	3
49.360		Systems Analysis & Design 1	3

Major Concentration Courses—Students specializing in Industrial Management Planning and Control

41.405	41.406	Cost Accounting 1, 2*	6
45.407		Operations Management	3
45.409		Cases in Industrial Management	3
45.416		Manufacturing Seminar 2*	3
45.419		Managing for Results	3
45.420		Economic Analysis in Industry	3
45.421		Management and Operational Control Systems	3

Electives			15
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Total Credits			174
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Additional departmental offerings appear on pages 166 through 167.

*Upper-level course—see page 43.

Industrial Technology (Major Code 490)

Bachelor of Science Degree

quarter hours

96

Engineering or Science Technology Courses

(Must have completed English 1, 2, 3 or equivalent)

Core Courses—Arts and Sciences

19.301	19.302	19.303	Psychology 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
39.301	39.302	39.303	Economic Principles & Problems 1, 2, 3	9

Applied Courses

49.301	49.302	Law 1, 2*	6
49.310		Electronic Data Processing 1	3
49.400	49.401	Human Relations 1, 2	6
49.420	49.421	Labor Relations 1, 2	6

Core Courses—Business Administration

41.301	41.302	Accounting Principles 1, 2	6
43.301		Introduction to Marketing 1	3
45.301		Management & Organization 1	3
45.306		Project Planning & Control	3

Students are required to select three of the following courses for a total of 9 q.h.'s:

45.407	Operations Management	3
45.409	Cases in Industrial Management	3
45.419	Managing for Results	3
49.388	Principles of Quality Assurance	3

Total Credits

174

*Upper-level course—see page 43.

Management (Major Code 450)**Bachelor of Science Degree**

Associate Degree in Business Administration	quarter hours
	96

Core Courses—Arts and Sciences

19.332	19.333	Industrial Psychology 1, 2	6
29.301	29.302	Effective Speaking 1, 2	6
30.311	30.312	Business Writing & Reports 1, 2	6
39.331	39.332	39.333 Business Cycles 1, 2, 3	9

Applied Courses

45.306		Project Planning & Control	3
49.301	49.302	Law 1, 2*	6

Major Concentration Courses

41.303		Accounting Principles 3	3
43.334		Marketing Management 1*	3
44.318		Management of Financial Institutions 1*	3
45.303		Principles & Practices of Management	3
45.310	45.311	Management Decisions and Policies 1, 2*	6
45.313	45.314	Management Seminar 1, 2*	6

Electives	18
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Total Credits	174
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Additional departmental offerings appear on pages 164 through 165.

*Upper-level course—see page 43.

Management Information Systems (Major Code 453)**Bachelor of Science Degree**

				quarter hours
Associate Degree in Electronic Data Processing				96
Core Courses—Arts and Sciences				
21.301	21.302	21.303	Sociology 1, 2, 3	9
30.311	30.312		Business Writing & Reports 1, 2	6
Applied Courses				
49.301	49.302		Law 1, 2*	6
49.380			Introduction to Operations Research*	3
49.381			Operations Research Applications*	3
49.400	49.401		Human Relations 1, 2	6
49.420	49.421		Labor Relations 1, 2	6
Major Concentration Courses				
44.301			Introduction to Financial Management	3
44.310			Financial Management I	3
49.363			Systems Analysis & Design 4*	3
49.364			Data Systems Administration	3
49.365			Data Processing Applications I	3
49.367	49.368		Senior Seminar 1, 2*	6
Electives				18
Total Credits				174

Additional departmental offerings appear on pages 171 through 174.

*Upper-level courses—see page 43.

Marketing (Major Code 430)**Bachelor of Science Degree****Associate Degree in Business Administration**quarter hours
96**Core Courses—Arts and Sciences**

21.301	21.302	21.303	Sociology 1, 2, 3	9
29.301	29.302		Effective Speaking 1, 2	6
30.311	30.312		Business Writing & Reports 1, 2	6

Applied Courses

49.301	49.302		Law 1, 2*	6
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Major Concentration Courses

43.302			Intro. to Marketing 2	3
43.334	43.335		Marketing Management 1, 2*	6
43.313	43.314		Marketing Research 1, 2*	6
43.322	43.323		Sales Management 1, 2*	6

Electives				30
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Total Credits				174
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Additional departmental offerings appear on pages 161 through 162.

*Upper-level courses—see page 43.

Personnel and Industrial Relations (Major Code 422)				Bachelor of Science Degree
				quarter hours
Associate Degree in Business Administration				96
Core Courses—Arts and Sciences				
21.301	21.302	21.303	Sociology 1, 2, 3	9
26.301	26.302	26.303	Philosophy: Method, Reality, Justice**	9
29.301	29.302		Effective Speaking 1, 2	6
Applied Courses				
49.301	49.302		Law 1, 2*	6
Major Concentration Courses				
49.404	49.405	49.406	Personnel Management 1, 2, 3*	9
49.430			Private Sector Collective Bargaining in U.S.	3
49.431			International Labor Relations	3
49.432	49.433	49.434	Employment Rights 1, 2, 3	9
Electives				24
Total Credits				174

Additional departmental offerings appear on pages 174 through 176.

*Upper-level course—see page 43.

**Formerly Intro. to Philosophy 1, 2, 3. For details, see course descriptions.

Trans. and Physical Distribution Mgmt. (Major Code 480) Bachelor of Science Degree

Associate Degree in Transportation and Physical Distribution Management quarter hours
96

Core Courses—Arts and Sciences

19.301	19.302	19.303	Psychology 1, 2, 3	9
or			or	or
21.301	21.302	21.303	Sociology 1, 2, 3	9
29.301	29.302		Effective Speaking 1, 2	6
39.323	39.324	39.326	Government & Business 1, 2, 3	9

Applied Courses

49.301	49.302	Law 1, 2*	6
49.310	49.311	Electronic Data Processing 1, 2	6
49.320		COBOL for Non-Programmers	3

Electives 39

Total Credits 174

Additional departmental offerings appear on pages 170 through 171.

*Upper-level course—see page 43.

Combined Program in Arts and Sciences and Management
(Major Code 371)
Bachelor of Science Degree
quarter hours
Basic Courses—Arts and Sciences

10.627	10.628	10.629	Mathematics 1, 2, 3	9
19.301	19.302	19.303	Psychology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
39.301	39.302	39.303	Economic Principles & Problems 1, 2, 3	9

Core Courses—Arts and Sciences

21.301	21.302	21.303	Sociology 1, 2, 3	9
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
26.301	26.302	26.303	Philosophy: Method, Reality, Justice**	9
39.311	39.312	39.313	Statistics 1, 2, 3	9

Arts and Sciences Electives

Fine Arts: Art, Music, or Theatre Arts	9
Literature: English, American, or other in translation	9

Applied Courses

49.301	49.302	Law 1, 2*	6
49.310	49.311	Electronic Data Processing 1, 2	6
49.320		COBOL for Non-Programmers	3
49.400	49.401	Human Relations 1, 2	6
49.420	49.421	Labor Relations 1, 2	6

Core Courses—Business Administration

41.301	41.302	Accounting Principles 1, 2	6
43.301		Introduction to Marketing 1	3
44.301		Introduction to Financial Management	3
44.310	44.311	Financial Management 1, 2*	6
45.301	45.302	Management & Organization 1, 2	6

Electives

15

Total Credits
174

*Upper-level course—see page 43.

**Formerly Intro. to Philosophy 1, 2, 3. For details, see course descriptions.

Arts and Sciences

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Aims

In providing the means to a modern liberal education, University College has the main objective of stimulating and guiding the self-development of the student in three main areas: first, intellectual growth; second, the development of a sense of values; and third, preparation for, or advancement in, a career.

Intellectual growth—the development of the ability to think independently and creatively—rests upon the foundation of a sound general education. Through the arts and sciences curricula, students are guided toward an appreciative understanding of the active discovery of ideas and methods in the areas of humanities, natural science, and social science. With this training, the student can more fully realize the basic values upon which civilization rests and can more fully participate in the intellectual, moral, and material achievement of that civilization.

Through its many programs, University College tries to provide experiences conducive to the development of personal competence and the ability to work effectively with others, which in turn fosters the growth of self esteem.

University College holds that there is no inconsistency between a truly liberal education and preparation for a vocation. As an adventure in intellectual discovery, a liberal education leads to the broadening and intensification of interests as the student becomes aware of his or her own mental strengths and weaknesses. This discovery is essential for making more intelligent and realistic appraisals of self and career. A career brings meaning and focus to the educational experience. Education presents both a challenge to accept responsibility and an opportunity to seek knowledge and skills.

Bachelor's Degrees in Ten Programs

Students have an opportunity to matriculate for a

Bachelor of Arts or Bachelor of Science degree in one of ten programs. Both degrees are offered in Economics, English, Art, Political Science, History, Psychology, Sociology-Anthropology, and Music. In addition, the Bachelor of Science degree is offered in Chemical-Biological Technology and for the first time this year, Technical Communications.

One of the distinguishing characteristics of the B.A. degree is that it includes a language requirement, whereas the B.S. degree does not. All degree programs make English 1, 2, and 3 a requisite for matriculation.

For specific distribution requirements, students are advised to consult the program or programs in which they may be interested. (All Arts and Sciences programs appear in this section).

Enrichment and Skills Offerings

While the Arts and Sciences have long been perceived as disciplines rich in intellectual and cultural content (such as courses in Shakespeare, Western Civilization, Beethoven, and Irish History), their relevance to current career needs are often overlooked. Students are encouraged to explore the practical side of Liberal Arts, which includes courses in social welfare, economics, logic, business writing, and effective speaking.

Introducing New Programs

The Arts and Sciences division is pleased to be able to offer the following new programs which have been especially designed to integrate learning with professional development:

- B.S. Degree Program in Technical Communications
- Professional Concentration in Public Administration
- Professional Concentration in Human Services

Please consult individual programs for details.

Technology Programs

In addition to the new B.S. degree program in Technical Communications, University College offers the following programs which respond to the current need for technicians and technologists:

Chemical-Biological Technology (A.S.) page 83.
Chemical-Biological Technology (B.S.) page 84

The Associate in Science Degree

The program leading to the associate degree is offered for those desiring a general cultural background in arts and sciences and humanities, but who do not wish to pursue a major field of concentration for the baccalaureate degree.

Candidates for the Associate in Science degree in Arts and Sciences must complete a minimum of 96 quarter hours of credit. This is approximately one half of the requirements (174 quarter hours) for the Bachelor of Science degree.

To provide a balanced program that will achieve the established objectives, the faculty has set a minimum credit requirement in the several areas of study as listed under each major.

Distribution Requirements

For the purpose of satisfying the distribution requirements in all Arts and Sciences majors:

Math-Science includes only courses in mathematics (10. . . .), physics (11. . . .), chemistry (12. . . .), earth science (16. . . .), biology (18. . . .), and psychology (lab. courses only) (19. . . .).

Humanities includes only courses in art (27. . . .), speech and theatre arts (29. . . .), English (except *required*) (30. . . .), journalism (38. . . .), library systems (40. . . .), modern languages (except *required* elementary or conversational) (31. . . . to 34. . . .), philosophy (26. . . .), and music (28. . . .).

Social Sciences includes only courses in economics (39. . . .), history (23. . . .), political science (22. . . .), psychology (except laboratory courses) (19. . . .), social welfare (25. . . .), and sociology-anthropology (20. . . . and 21. . . .).

English Requirement The 9 quarter hours of *required* English (30.305, 30.306, 30.307, English 1, 2, 3) must be taken prior to matriculation. These are required courses that cannot be used to satisfy distribution requirements in any arts and sciences course of study.

Honors Program

An upperclass honors program is provided in University College to enable superior students to develop their potential to the highest degree by making it possible for them to pursue studies in their major fields to greater depth than is possible in the regular courses.

The nature of the program is determined by the academic department concerned. Programs may involve any of the following elements: special re-

search projects culminating in honor theses, seminars, reading projects, directed independent study, or creative work. Flexibility is the keynote, with every consideration given to the individual needs and requirements of the student. Honors advisers are chosen from the faculty of the department concerned in consultation with the department consultant.

Students who have earned 96 quarter hours of credit toward their bachelor's degree and who have a grade-point average of 3.0 or better are eligible to apply to the appropriate Program Director of Arts and Sciences in University College for admission to the program. Acceptance as an honors candidate rests with the academic department concerned.

Acceptance of University College Credits by Northeastern's Basic College of Arts and Sciences

The College of Arts and Sciences, one of the basic (day) colleges of Northeastern University, permits its students to enroll for credit in all courses in University College offered on a quarterly basis, when they are pertinent to the student's program and have been approved by the Dean of the College of Arts and Sciences. The credits for such courses may be applied to the total number of credits needed for graduation, to satisfy distribution requirements, and/or to fulfill language and major deficiencies.

Credits from University College, as well as those from other accredited institutions, may not be applied to the quality point average of students in the College of Arts and Sciences except when such credits are from courses taken as substitutes for those College of Arts and Sciences courses failed by students. In such instances, students must receive a grade of C or better in the University College courses and then only 2.0 quality points are applied to the student's record for each course. Courses taken in University College that are not offered in the College of Arts and Sciences may be transferred with the full grade upon approval of the major department.

Credit for Noncollegiate Experience (NCE)

A matriculated Arts and Sciences student with a departmental major in University College is eligible to obtain up to 16 quarter hours of noncollegiate experience credit (NCE) for knowledge acquired in a nontraditional manner.

Whenever possible, NCE should be used as a substitute for specific Arts and Sciences courses (an example: using NCE in Public Speaking as a

substitute for 29.307). Under especially unusual circumstances, a student may secure credit for subject matter that has no counterpart course in University College.

To apply for NCE credit, a student must file a petition listing the relevant courses, reasons for which credit should be received, and if appropriate, attaching any materials that might serve as documentation.

Notification of acceptance or rejection of the petition will be issued by the Office of Academic and Student Affairs, as directed by the appropriate Arts and Sciences Program Director, with the advice of the concerned departmental consultant(s). The latter will determine whether the petitioner's NCE is equivalent to the course listings as claimed. Criteria for such evaluation may or may not include a formal examination, an interview, departmental consultation, or a request for additional documentation.

If positive action is taken on the petition, the resulting NCE credits may be applied toward a Bachelor's degree. However, students should be aware of certain constraints. To have NCE credit counted to qualify for a given June graduation, the petition must be filed at least six months prior to the commencement date. NCE cannot be used to fulfill residence requirements. NCE credit cannot be given for courses that can be accredited through the CLEP testing program at the time of the petition. Grades will not be assigned to NCE credits. It is possible that NCE credit may be applicable toward a degree in University College only.

Field Work Courses

To provide the opportunity for students to apply their academic background to practical problems, several departments have introduced courses in their curricula entitled "Field Work In. . . ."

A field work course shall have the following characteristics (as voted by the Curriculum Committee):

1. It shall be a one-quarter course worth six quarter hours of credit.
2. Only matriculated majors within the department offering the course may register.
3. The prerequisites shall be departmentally established.
4. Each student shall make his or her own arrangements for carrying on suitable field work at a departmentally acceptable organization involving departmentally acceptable field work experience(s). The department will participate in student placement only in an advisory capacity.

5. Each student shall spend a minimum of fifteen hours per week at the outside organization on a volunteer or paid basis.

6. Each student shall meet with the departmental field work adviser as frequently as the adviser feels necessary, but in any case no fewer than three times per quarter (once to formulate the program of field work experience, once to discuss ongoing work, and once to transmit and discuss the final written report).

7. The student's grade shall be dependent upon both the quality of the experience as demonstrated in the final report and the discussions between the U.C. field work adviser and the outside supervisor.

8. Provided that one student registers, the course will not be cancelled.

9. The outside supervisor will be offered a transferrable voucher for a tuition-free course at Northeastern University.

Prior to registration, each student should consult with the major department.

All field work courses will be numbered as follows:—499.

Directed Study

Students may be eligible to enroll in Directed Study courses in the following majors: Art, English, Music, Psychology, Sociology, Anthropology, History, Political Science, and Economics. Please refer to course descriptions for more detailed information.

Economics (Major Code 390)				Bachelor of Arts Degree
				quarter hours
Distribution Requirements				
See page 64 for courses included in these categories:				
Math-Science				18
Humanities				24
Social Science Requirements				
Eighteen quarter hours from among the following social science disciplines: psychology, sociology/anthropology, history, political science.				18
Arts and Sciences Program Requirements				
30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
Modern Language			Elementary or Conversational	12
			Intermediate	12
Major Concentration Courses—Required*				
39.301	39.302	30.303	Economic Principles 1, 2, 3	9
39.311	39.312	39.313	Statistics 1, 2, 3	9
39.317	39.318		Money and Banking 1, 2	6
39.319			Government Finance	3
39.327			Labor Economics	3
Major Concentration Electives from advanced-level courses: (39.---series)				27
Electives				24
Total Credits				174

Economics (Major Code 390)				Bachelor of Science Degree
				quarter hours
Distribution Requirements				
See page 64 for courses included in the category below:				
Social Sciences (other than Economics courses).				18
Arts and Sciences Program Requirements				
30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
Major Concentration Courses—Required*				
39.301	39.302	39.303	Economic Principles 1, 2, 3	9
39.311	39.312	39.313	Statistics 1, 2, 3	9
39.317	39.318		Money and Banking 1, 2	6
39.319			Government Finance	3
39.327			Labor Economics	3
Major Concentration Electives from advanced-level courses: (39.---series)				48
Electives				69
Total Credits				174

*Students may be eligible to enroll in Directed Study courses. Please refer to p. 158.

English (Major Code 330)**Bachelor of Arts Degree****quarter hours****Distribution Requirements**

See page 64 for courses included in the categories listed below:

Math-Science	18
Social Sciences	24

Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
Modern Language			Elementary or Conversational	12
			Intermediate	12

Major Concentration Courses:**Preliminary Courses—All Courses Required**

30.341	English Literature: to 1700	3
30.342	English Literature: to 1832	3
30.343	English Literature: Victorians and Moderns	3
30.344	Colonial American Literature	3
30.345	American Romanticism	3
30.346	American Literature: The Modern Temper	3

Major Figures—Four Courses Required

30.351	Chaucer and The Canterbury Tales	3
30.354	Shakespeare: The Young Dramatist	3
30.355	Shakespeare: Comedies and Early Tragedies	3
30.356	Shakespeare: Later Tragedies and Romances	3
30.361	Spenser and The Faerie Queene	3
30.362	Milton and Paradise Lost	3

English Literature—Three Courses Required

30.350		British Women Writers	3
30.357		The Seventeenth Century	3
30.358	30.359	The Eighteenth Century 1. 2	6
30.371	30.372	The Nineteenth Century 1. 2	6
30.373		The Twentieth Century	3
30.374		The Eighteenth-Century English Novel	3
30.375		The Nineteenth-Century English Novel	3
30.376		The Twentieth-Century English Novel	3

American Literature—Three Courses Required

30.380	Ethnic Literature in America	3
30.381	The American Short Story	3
30.382	The Nineteenth-Century American Novel	3
30.383	The Twentieth-Century American Novel	3
30.339	Irish Writers in America	3
30.349	American Women Writers	3
30.384	Contemporary American Poetry	3
30.388	Outside the Mainstream: The Literature of America's Subcultures	3
30.389	Modern American Voices	3

Literature in Translation—Three Courses Required

30.331	The Ancient World	3
30.332	The Middle Ages	3
30.333	The Renaissance	3
30.334	Neoclassicism and Romanticism	3
30.335	Realism and Naturalism	3
30.336	The Modern World	3

English Electives (may include 30.391, 30.392, 30.393, Honors Programs 1, 2, 3) 9

Special arrangement may be made to take 30.395 and 30.396, Directed Studies 1 and 2, to substitute for an upper-level concentration requirement when the course(s) is not available on a regularly scheduled basis. Consult course descriptions for details.

Open Electives 36

Total Credits 174

English (Major Code 330)	Bachelor of Science Degree
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Unless otherwise stated, requirements are the same as for the B.A. degree, except:	
Modern Language	None
English Electives	27
Open Electives	44

Technical Communications (Major Code 380)**Bachelor of Science Degree**

The Bachelor of Science Degree in Technical Communications is available to students who have acquired an Associate in Science Degree or its equivalent (including the completion of English 1, 2, and 3) while maintaining a 2.0 grade point average. Once a student has had sufficient training in Technical Communications, a cooperative job placement option will be made available to him/her through the University College Cooperative Education Program.

Distribution Requirements for the B.S. Degree**quarter hours**

A.S. degree or its equivalent	84-96
Core Communications courses	27
Core Technology courses	29
Specialized Communications courses	18
Open electives	15
To equal	173-185

A. Core Communications Courses—Required

	Humanities or Social Science Courses*	9
27.420	Graphics Communication and Production	3
29.316	Oral Collaboration	3
30.308 30.309	Expository and Persuasive Writing 1, 2	6
30.413	Technical and Scientific Editing	3
40.325	Business Research Tools	3

B. Core Technology Courses—Required**

10.681 10.682	Introduction to Math 1, 2	8
10.683	Applied Math and Statistics	3
93.550 93.551	Concepts of Modern Technology 1, 2	6
93.552	Measurement and Analysis	3
93.554	Theory and Operation of Computers	3

*See page 64 for courses included in these categories.

**Descriptions for courses beginning with 06.--- and 93.--- may be found in the *Lincoln College Bulletin*.

Select two of the following:

49.321	COBOL Programming 1	3
49.327	FORTTRAN Programming 1	3
49.340	Programming in BASIC	3
93.553	Modern Electronics	3

C. Specialized Communications Courses—required

30.410 30.411	Technical Writing 1, 2	6
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Select four of the following:

30.415	Proposal Writing	3
30.420 30.421	Hardware Technical Manual Writing 1, 2	6
30.425 30.426	Computer Software Technical Writing 1, 2	6
93.650	The Technical Presentation	3

D. Cooperative Work Experience

An option for eligible students.

E. Open Electives*

15

It is suggested that students select open electives from among the following courses to reflect individual interest:

06.645		Assembly Language	4
06.670		Introduction to CPU Hardware	4
06.675		CPU Hardware Architecture	4
30.310		Expository Writing and Communication 3	3
41.301	41.302	Accounting Principles 1, 2	6
41.405	41.406	Cost Accounting 1, 2	6
45.301	45.302	Management & Organization 1, 2	6
51.306		Methods and Materials 1	3

*Descriptions for courses beginning with 06--- and 93--- may be found in *Lincoln College Bulletin*.

Recommended Course Sequence

For maximum learning benefit, students are encouraged to undertake studies in the following sequence, adjusting length of study to course load. (e.g., students taking two courses per quarter will take two years to complete Sequence 1, or less than two years if study in the Summer quarter is elected). Assistance for such decisions may be obtained by contacting the Department of Career and Academic Counseling at 617-437-2400.

First Year Sequence 1

Fall Quarter

	Humanities or Social Science Course
29.316	Oral Collaboration
10.681	Introduction to Math 1
93.550	Concepts of Modern Technology 1

Winter Quarter

	Humanities or Social Science Course
30.308	Expository and Persuasive Writing 1
10.682	Introduction to Math 2
93.551	Concepts of Modern Technology 2

Spring Quarter

	Humanities or Social Science Course
30.309	Expository and Persuasive Writing 2
10.683	Applied Math and Statistics
93.552	Measurement and Analysis

Second Year Sequence 2

Fall Quarter

40.325	Business Research Tools
30.410	Technical Writing 1
	Technology Elective*
	Open Elective

Winter Quarter

27.420	Graphics Communication and Production
30.411	Technical Writing 2
93.554	Theory and Operation of Computers
	Open Elective
	Open elective

Spring Quarter

30.413	Technical and Scientific Editing
93.650	The Technical Presentation
	Technology Elective*
	Open Elective

*Course selection from Module 2

Third Year Sequence 3

Fall Quarter

30.415	Proposal Writing
30.420	Hardware Technical Manual Writing 1
30.425	Computer Software Technical Writing 1
	Open Elective

Winter Quarter

30.421	Hardware Technical Manual Writing 2
30.426	Computer Software Technical Writing 2
	Open Elective

Spring Quarter

	University College Co-op Program
	Open Elective (optional)

Fine Arts (Major Code 327)**Bachelor of Arts Degree****Distribution Requirements****quarter hours**

See page 64 for courses included in these categories listed below:

Math-Science	18
Social Science	24

Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
			Elementary or Conversational	12
			Intermediate	12

Major Concentration Courses—Required

27.301	Introduction to the Arts	3
27.304	History of Art	3
27.305	History of Art to the Sixteenth Century	3
27.306	History of Art to the Twentieth Century	3

In addition, the major requires a minimum of 39 quarter hours from the Fine Arts course offerings described on pages 143 to 145.

39

Electives

48

Total Credits**174**

Special arrangements may be made to take 27.395 and 27.396, Directed Studies 1 and 2, to substitute for an upper-level concentration requirement when the course(s) is not available on a regularly scheduled basis. Consult course descriptions for details.

Fine Arts (Major Code 327)**Bachelor of Science Degree****Distribution Requirements****quarter hours**

See page 64 for courses included in these categories listed below:

Math-Science	18
Social Science	24

Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
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Major Concentration Courses—Required

27.301	Introduction to the Arts	3
27.304	History of Art	3
27.305	History of Art to the Sixteenth Century	3
27.306	History of Art to the Twentieth Century	3

In addition, the major requires a minimum of 39 quarter hours from the Fine Arts course offerings described on pages 143 to page 145.

39

Electives

72

Total Credits**174**

Special arrangements may be made to take 27.395 and 27.396, Directed Studies 1 and 2, to substitute for an upper-level concentration requirement when the course(s) is not available on a regularly scheduled basis. Consult course descriptions for details.

History (Major Code 323)			Bachelor of Arts Degree	
			quarter hours	
Distribution Requirements				
See page 64 for courses included in the categories listed below:				
Math-Science			18	
Humanities			24	
Social Science Requirements				
Eighteen quarter hours from at least three of the following social science disciplines: economics, political science, psychology, sociology/anthropology.			18	
Arts and Sciences Program Requirements				
30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
Modern Language			Elementary or Conversational	12
			Intermediate	12
Major Concentration Courses—Required*				
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
23.300			The Historian's Craft	3
Courses from the following areas:				
I. Ancient, Medieval, and Early Modern Europe			6	
II. Modern and Contemporary Europe			6	
III. American History (in addition to 23.304, 23.305, 23.306 above)			6	
IV. Other regions			6	
Additional history electives may be chosen from the above four areas and may include history honors courses (if eligible).				
Electives				36
Total Credits				174

*Students may be eligible to enroll in Directed Study courses. Please refer to p. 141.

History (Major Code 323)

Bachelor of Science Degree

Distribution Requirements

quarter hours

See page 64 for courses included in the category below:

Humanities	24
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Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
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Major Concentration Courses—Required*

23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
23.300			The Historian's Craft	3

Courses from the following areas:

I.	Ancient, Medieval, and Early Modern Europe	6
II.	Modern and Contemporary Europe	6
III.	American History (in addition to 23.304, 23.305, 23.306 above)	6
IV.	Other Regions	6

Additional history electives may be chosen from the above four areas and may include history honors courses (if eligible).	9
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Social Science Requirements

History majors are required to select *two* of the following course sequences for a total of 18 q.h.

19.301	19.302	19.303	Psychology 1, 2, 3	9
20.301	20.302	20.303	Anthropology 1, 2, 3	9
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
22.301	22.302	22.303	Sociology 1, 2, 3	9
39.301	39.302	39.303	Economic Principles and Problems 1, 2, 3	9

Other Required Courses

21.312	21.313	21.314	Social Research Methods 1, 2, 3	12
49.310	49.311		Electronic Data Processing 1, 2	6

Electives	51
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While students may elect courses in their major field in excess of the minimum number required, they are encouraged to elect courses in a variety of fields beyond the major.

Total Credits

174

*Students may be eligible to enroll in Directed Study courses. Please refer to p. 141

Arts and Sciences (Major Code 372)				Associate in Science Degree
				quarter hours
Distribution Requirements				
See page 64 for courses included in the categories listed below:				
Math-Science				18
Humanities				24
Social Sciences				24
30.305	30.306	30.307	English 1, 2, 3	9
Electives				21
Total Credits				96

Political Science (Major Code 322)**Bachelor of Arts Degree****Distribution Requirements****quarter hours**

See page 64 for courses included in these categories listed below:

Math-Science	18
Humanities	24

Social Science Requirements

Eighteen quarter hours from at least three of the following social science disciplines: economics, psychology, sociology/anthropology, history.	18
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Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
Modern Language				12
Intermediate				12

Major Concentration Courses—Required*

Prerequisites				
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
Area I. American Government				9
Area II. Comparative Government (22.329, Comparative Politics Intensive required, 4 q.h.)				7
Area III. International Relations (22.335, International Relations required, 4 q.h.)				7
Area IV. Theory and Methodology (22.336, Intro. to Political Theory required, 4 q.h.)				7

Political Science Electives

Select from above areas: may include maximum number of q.h. permitted for honors courses.	18
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Open Electives

24

Total Credits**174**

*Students may be eligible to enroll in Directed Study courses. Please refer to p. 137.

Political Science (Major Code 322)**Bachelor of Science Degree****quarter hours****Arts and Sciences Program Requirements**

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
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Courses Required for Major

Prerequisites				
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
Area I. American Government				9
Area II. Comparative Government (22.329, Comparative Politics Intensive required, 4 q.h.)				7
Area III. International Relations (22.335, International Relations required, 4 q.h.)				7
Area IV. Theory and Methodology (22.336, Intro. to Political Theory required, 4 q.h.)				7

Political Science Electives

Select from page 75: may include maximum number of q.h. for honors and directed study. 18

Additional Requirements

19.304	19.305	19.306	Statistics in Psychology 1, 2, 3	9
or			or	or
39.311	39.312	39.313	Statistics 1, 2, 3	9
49.310	49.311		Electronic Data Processing 1, 2	6
49.320			COBOL For Non-Programmers	3

Open Electives

Must include not fewer than 6 q.h. from each of three different social science disciplines selected from economics, history, psychology, and sociology/anthropology, other than political science. 27

Electives* 63

Total Credits 174

Public Administration Elective Concentration

quarter hours

Required courses:

22.316	Public Administration 1	3
22.317	Public Administration 2	3
22.308	Research Methods	3
22.306	American Political Thought	3

Two of the following:

22.310	Public Budgeting	3
22.311	Public Personnel Administration	3
22.406	Organizational Theory	3

Seven of the following:

22.309	Public Policy Analysis	3
22.314	American Constitutional Law	3
22.312	Urban Metropolitan Government	3
22.332	International Organization	3
22.318	Government and Politics of the State	3
22.320	American Presidency	3
22.328	Procedural Due Process	3
22.370	Consumer Advocacy	3
22.315	Civil Rights	3
22.351	Current Political Issues	3

One Political Science Elective 3

Total credits required 42

*Electives—Students majoring in the B.S. program may also pursue a concentration in Public Administration.

Psychology (Major Code 319)**Bachelor of Arts Degree****quarter hours****Distribution Requirements**

See page 64 for courses included in these categories:

Math-Science	18
Humanities	24

Social Science Requirements

Eighteen quarter hours from at least three of the following social science disciplines: political science, sociology/anthropology, history, economics.	18
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Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
Modern Language			Elementary or Conversational	12
			Intermediate	12

Major Concentration Courses—Required*

Students planning to continue their education beyond the B.A. or B.S. are encouraged to take Scientific Foundations of Psychology 1 and 2 (19.361 and 19.362).

19.301	19.302	19.303	Psychology 1, 2, 3	9
19.304	19.305	19.306	Statistics in Psychology 1, 2, 3	9
19.371			Senior Seminar	3

Three of the following pairs—Required

19.314	19.315	Personality 1, 2 (Lab) (6)	
19.338	19.340	Learning 1, 2 (Lab) (6)	
19.349	19.350	Sensation & Perception 1, 2 (Lab) (6)	
19.380	19.381	Physiological Psychology 1, 2 (Lab) (6)	18

Psychology Electives (19.---series)

21

Open Electives

21

While students may elect courses in their major field in excess of the minimum number required, they are encouraged to elect courses in a variety of fields beyond the major.

Total Credits**174**

*Students may be eligible to enroll in Directed Study courses. Please refer to p. 131.

Psychology (Major Code 319)

Bachelor of Science Degree

quarter hours

Distribution Requirements

See page 64 for courses included in this category:

Math-Science	33
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Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
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Major Concentration Courses—Required*

19.301	19.302	19.303	Psychology 1, 2, 3	9
19.304	19.305	19.306	Statistics in Psychology 1, 2, 3	9
19.371			Senior Seminar	3
19.314	19.315		Personality 1, 2 (Lab)	6
19.338	19.340		Learning 1, 2 (Lab)	6
19.349	19.350		Sensation & Perception 1, 2 (Lab)	6
19.380	19.381		Physiological Psychology 1, 2 (Lab)	6

Psychology Electives (19.---series)	15
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Open Electives	72
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Students planning to continue their education beyond the B.A. or B.S. are encouraged to take Scientific Foundations of Psychology 1 and 2 (19.361 and 19.362).

Total Credits	174
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*Students may be eligible to enroll in Directed Study courses. Please refer to p. 131.

Sociology-Anthropology (Major Code 321)**Bachelor of Arts Degree****quarter hours**

In order to matriculate as a sociology-anthropology major, registration in either 21.312 (Social Research Methods 1) or 21.317 (Social Theory 1) is required.

Distribution Requirements

See page 64 for courses included in these categories:

Math-Science	18
Humanities	24

Social Science Requirements

Eighteen quarter hours from at least three of the following social science disciplines: psychology, political science, history, economics.	18
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Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
Modern Language			Elementary or Conversational	12
			Intermediate	12

Major Concentration Courses—Required*

Prerequisites				
21.301	21.302	21.303	Sociology 1, 2, 3 or 21.307 Intensive Sociology (9) (may apply to major concentration electives unless waived by department)	9
20.301	20.302	20.303	Anthropology 1, 2, 3	9
21.312	21.313	21.314	Social Research Methods 1, 2, 3	12
21.317	21.318	21.319	Social Theory 1, 2, 3	9
or			or	or
21.417	21.418		Social Theory 1, 2 (Intensive)	8

Sociology-Anthropology Electives: (20.--- or 21.---series) 30

Students may take any combination of Honors and Field Work totaling three courses.

Open Electives 21-22**Total Credits 174**

*Students may be eligible to enroll in Directed Study courses. Please refer to p. 134.

Sociology-Anthropology (Major Code 321)

Bachelor of Science Degree

quarter hours

Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
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Distribution Requirements

See page 64 for courses included in the categories below:				
Social Sciences (other than Sociology-Anthropology)				18

Major Concentration Courses—Required*

21.301	21.302	21.303	Sociology 1, 2, 3 or 21.307 Intensive Sociology may apply to major concentration electives unless waived by department	9
20.301	20.302	20.303	Anthropology 1, 2, 3	9
21.312	21.313	21.314	Social Research Methods 1, 2, 3	12
21.317	21.318	21.319	Social Theory 1, 2, 3	9
or			or	or
21.417	21.418		Social Theory 1, 2	8

Sociology-Anthropology Electives

At least 6 q.h. must be in anthropology; see page 131.				48
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Open Electives**

69–70

While students may elect courses in their major fields in excess of the minimum requirements, B.S. students especially are strongly encouraged to elect courses in math-science and the humanities to achieve adequate educational breadth.

Total Credits

174

*Students may be eligible to enroll in Directed Study courses. Please refer to p. 134.

**Human Services Elective Concentration

				quarter hours
Students majoring in the B.S. degree in Sociology-Anthropology may also pursue a concentration in Human Services.				

Required Courses

25.343	25.344	25.345	Intro. to Social Work Practice 1, 2, 3	9
25.350			Human Service Professions	3
25.351			Sociology of Human Service Organizations	3
25.352			Evaluation of Social Intervention	3
21.347			Social Problems	3
21.356			Sociology of Inequality	3

Additional Requirements

19.301	19.302	19.303	Introductory Psychology 1, 2, 3	9
19.341	19.342	19.343	Abnormal Psychology 1, 2, 3	9
				42

Human Services Concentration students are encouraged to consider selecting electives from among the following courses:

19.311	19.312	19.313	Developmental Psychology 1, 2, 3
19.314			Personality
21.334			Social Control
21.346			Sociology of Deviant Behavior
21.350			Juvenile Delinquency
21.353	21.354		Intergroup Relations 1, 2
21.360			Medical Sociology
21.361			Sociology of Mental Health
21.362			Social Gerontology: The Aged in Society
22.309			Public Policy Analysis
22.315			Civil Rights
22.316	22.317		Public Administration 1, 2
39.341			Medical Economics
39.343			Poverty and Discrimination
39.357			Manpower and Anti-Poverty Policies and Programs

Music (Major Code 328)**Bachelor of Arts Degree**

quarter hours

Distribution Requirements

See page 64 for courses included in these categories:

Math-Science	18
Social Sciences	24

Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
			Elementary or Conversational	12
			Intermediate	12

Major Concentration Courses—Required

28.399	28.400	28.401	Music Theory 1, 2, 3	9
28.402	28.403	28.404	Music History 1, 2, 3	9
28.410			Music History 4	3
28.371			Piano Class 1	3
28.328	28.329	28.330	Ear Training 1, 2, 3	9

Major Concentration Electives (28.---series)

24

Open Electives

42

Total Credits**174****Music (Major Code 328)****Bachelor of Science Degree**

quarter hours

Distribution Requirements

See page 64 for courses included in these categories:

Math-Science	9
Social Sciences	24

Arts and Sciences Program Requirements

30.305	30.306	30.307	English 1, 2, 3 (required prior to matriculation)	9
			Modern Language	12

Major Concentration Courses—Required

28.399	28.400	28.401	Music Theory 1, 2, 3	9
28.371	28.372	28.373	Piano Class 1, 2, 3	9
28.328	28.329	28.330	Ear Training 1, 2, 3	9
28.334	28.335	28.336	Pedagogy 1, 2, 3	9
28.337			Conducting 1	3

Major Concentration Electives

From the 28.---series, of which 6 q.h. must be in music history of any two periods.	18
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Humanities Electives (other than music courses)

15

Open Electives

48

Total Credits**174**

Chemical-Biological Technology (Major Code 803)**Associate in Science Degree**

The program in Chemical-Biological Technology helps provide the chemistry and biology foundation required by medical and industrial laboratory assistants and technicians in clinically, chemically, or biologically oriented organizations, and for persons having paramedical responsibilities. Employment opportunities are in hospitals, health clinics, research foundations, chemical and drug industries, public health organizations, water and sanitation departments, and in the emerging fields of the oceanographic technologies.

Prerequisite: Satisfactory completion of the Mathematics Placement Test or the Basic Mathematics 1 and 2 courses (10.671 and 10.672). The Mathematics Placement Test must be taken prior to registration.

Note: Associate degree graduates may transfer applicable credits toward the requirements in Lincoln College programs leading to the Associate in Engineering, Associate in Science, or Bachelor of Engineering Technology degrees, as well as University College programs.

				quarter hours
First Year				
10.627	10.628	10.629	Mathematics 1, 2, 3	9
or			or	or
10.607	10.608		College Algebra and Introduction to Calculus	8
11.604	11.605	11.606	General Physics 1, 2, 3	6
12.444	12.445	12.446	General Chemistry 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
Second Year				
10.316	10.317	10.318	Probability and Statistics 1, 2, 3	6
or			or	or
10.620	10.621		Calculus 1 and Calculus A	8
			Social Science Elective 1, 2, 3	9
18.411	18.412	18.413	Biology 1, 2, 3	12
Third Year				
12.431	12.432	12.433	Organic Chemistry 1, 2, 3	12
or			or	or
12.421	12.422	12.423	Analytical Chemistry 1, 2, 3	9
18.424	18.425	18.426	Human Anatomy and Physiology 1, 2, 3	9
			Humanities Elective 1, 2, 3	9
Fourth Year				
18.421	18.422	18.423	Microbiology 1, 2, 3	9
			Chemistry or Biology Electives (as needed to complete total credits)	
Total Credits				96-100

Chemical-Biological Technology (Major Code 804)**Bachelor of Science Degree**

The Chemical-Biological Technology program is an interdisciplinary program integrating theoretical and laboratory course sequences from the fields of chemistry and biology, which gives the opportunity for the student to prepare to assume responsibilities in laboratory careers that emphasize laboratory application and teaching careers in general science. Employment opportunities may be found in a wide variety of industrial, pharmaceutical, clinical, and hospital laboratories dealing with analytical, production, and research functions, and in secondary school education in the teaching of general science.

chemistry, biology, and other related courses.

Prerequisite: Satisfactory completion of the Mathematics Placement Test or the Basic Mathematics 1 and 2 courses (10.671 and 10.672). The Mathematics Placement Test must be taken prior to registration.

General Science Teacher Option—Students planning to apply to the University's graduate Boston-Bouvé College of Human Development Professions must include courses in Adolescent Psychology and Principles of Teaching among the electives.

First Year**quarter hours**

10.627	10.628	10.629	Mathematics 1, 2, 3	9
or			or	or
10.607	10.608		College Algebra & Introduction to Calculus	8
11.604	11.605	11.606	General Physics 1, 2, 3	6
12.444	12.445	12.446	General Chemistry 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9

Second Year

10.316	10.317	10.318	Probability and Statistics 1, 2, 3	6
or			or	or
10.620	10.621	10.622	Calculus 1 and Calculus A	8
18.411	18.412	18.413	Biology 1, 2, 3	12
23.301	23.302	23.303	History of Civilization 1, 2, 3	9

Third Year

12.421	12.422	12.423	Analytical Chemistry 1, 2, 3	9
18.424	18.425	18.426	Human Anatomy and Physiology 1, 2, 3	9
19.301	19.302	19.303	Psychology 1, 2, 3	9

Fourth Year

12.431	12.432	12.433	Organic Chemistry 1, 2, 3	12
18.421	18.422	18.423	Microbiology 1, 2, 3	9

Program continues on next page.

Fifth Year

18.451	18.452	18.453	Histology-Organology 1, 2, 3	6
39.301	39.302	39.303	Economic Principles 1, 2, 3	9
12.451	12.452		Instrumental Analysis 1, 2	6
12.453			Radiochemistry	3
16.331	16.332	16.333	Oceanology 1, 2, 3	9
or			or	
16.334	16.335		Fisheries Oceanology 1, 2	6
16.336			Marine Resources	3

Sixth Year

18.461	18.462	18.463	Ecology 1, 2, 3	9
12.441	12.442	12.443	Physical Chemistry 1, 2, 3	9
or			or	or
12.415	12.416	12.417	Biochemistry 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9

Seventh Year

18.457	18.458		Genetics 1, 2	6
or			or	or
18.431	18.432		Cell Biology 1, 2	6
18.459			Genetics Lab	2
or			or	or
18.433			Cell Biology Lab	2
			Electives as needed to complete total credits	

Total Credits**175-178**

Law Enforcement

Timothy F. Moran, Associate Dean
Director, Law Enforcement Programs
Telephone 437-3324

Aims

Law Enforcement programs of study are offered to help meet the needs of present and potential practitioners in the fields of Corrections, Law Enforcement, and Security who wish to have the opportunity to acquire a liberal education as well as professional competence or to gain recognition for development and attainment while pursuing a career in that profession. Classes are tailored to suit the shifting tours of duty of many of its students, with the result that day and evening students meet on common ground. These students reflect broad differences in age, as well as in occupation, goals, race, and religion.

Methods

The distribution requirements, including certain required courses, are shown with each curriculum. Upon petition, students may be permitted under certain circumstances to substitute other courses that will more adequately serve their specific objectives.

To provide a balanced program that will achieve the established objectives, the faculty has set minimum requirements in the areas of study outlined on the following pages.

Bachelor of Science Degree Program Major fields of study are offered in Correctional Practices, Law Enforcement, and Security. Students should choose their major field of study in consultation with a program adviser.

Each curriculum provides for not less than 174 quarter hours of work, including at least 75 quarter hours of advanced work in a major field.

No student who has transferred from another institution is eligible to receive a degree until at least 45 to 46 quarter hours of academic work have been completed at University College of Northeastern University immediately preceding graduation.

Associate in Science Degree Program The program leading to the associate degree is offered for those who wish to obtain a general background in Correctional Practices, Law Enforcement,

or Security, and later may wish to pursue a major field of concentration for the baccalaureate degree.

Candidates for the Associate in Science degree must complete a minimum of 96 quarter hours of credit. This is approximately one half of the requirements for the Bachelor of Science degree, and includes at least 48 quarter hours of work in a major field.

Honors Program The Honors Program in the field of Law Enforcement is designed to provide qualified students with the opportunity to achieve a broader and deeper intellectual academic experience within their chosen fields: Corrections, Law Enforcement, or Security.

In general, the Honors Program consists of the following areas: independent study, directed reading seminar, independent research projects, and special seminars.

The particular academic structure of a student's Honors Program will be arranged in consultation with the Program Director and the Honors Faculty Committee.

The Honors Program is open to all matriculated Law Enforcement Program students in University College who have obtained an associate degree or equivalent and a minimum cumulative grade point average of 3.0. Students who are eligible for this program may apply for admission and approval to the Director of Law Enforcement Programs.

For course numbers, see page 190.

Credit for Noncollegiate Experience (NCE)— Advanced Standing Credit

A matriculated University College student with a department major in Corrections, Law Enforcement, or Security may obtain up to 18 quarter hours of credit (excluding CLEP) by petitioning to take a comprehensive examination in the specific subject area based upon the student's knowledge acquired in a nontraditional manner. Petitions for these examinations may be obtained in Rooms 102 or 200 Churchill Hall.

In no case will this credit be considered as partial fulfillment of the residence requirement, nor will a letter grade be assigned.

No credit will be assigned in this manner for

courses that can be accredited through the CLEP or PEP Testing Programs at the time of the petition. Credit will be assigned only to specific courses. It is possible that this credit may be applicable toward a degree in University College only.

Course Sequence

Upon completion of the required courses for matriculation, the student should elect courses from the Core and Major Concentration areas in fulfilling the requirement for the Associate in Science and the Bachelor of Science degrees.

The completion of degree requirements may be accomplished at the student's own pace. A total of 32 courses is required for an associate in science degree, which can be completed over a period of three years, or nine academic quarters. A bachelor of science degree can be completed over a period of five years, or fifteen academic quarters. This schedule will average out to four courses per academic quarter.

Refer to page 22, Academic Policy/Maximum Course Load.

Intensive Courses Many courses are frequently offered as single quarter intensives during the regular school year. Please refer to the listing of courses on pages 191 and 192.

Intensive courses offer the opportunity for students to achieve their objectives in a shorter period of time.

Distribution Requirements For the purpose of satisfying the distribution requirements in all Law Enforcement programs, all students should discuss their academic programs with an academic adviser before attempting to undertake their programs of study.

Courses 30.305, 30.306, 30.307, English 1, 2, 3 (9 quarter hours), must be taken by each student prior to matriculation. (Refer to page 23 regarding matriculation.) The remaining courses amounting to 33–36 quarter hours should be taken from the distribution of the Basic Required, Core Required, and Major Concentration Courses as listed on the following pages.

Field Work Courses Field Work Courses provide an opportunity for students to apply their academic background to practical experience in the areas of Law Enforcement, Corrections, and Security. Course is numbered as 94.499.

A field work course shall comprise the following characteristics:

1. A one-quarter course worth six quarter hours of credit.

2. Only matriculated majors may register.

3. Prior to registration, each student should consult with the Program Director.

4. Each student shall meet with the departmental field work adviser as frequently as the adviser feels necessary, but in any case no fewer than three times per quarter (once to formulate the program of field work experience, once to discuss ongoing work, and once to transmit and discuss the written report).

5. Each student shall spend a minimum of fifteen hours per week at the outside agency on a volunteer or paid basis.

6. The student's grade shall be dependent upon both the quality of the experience as demonstrated in the final report and the discussions between the U.C. field work adviser and the outside supervisor.

7. Each student shall make his or her own arrangements for carrying on suitable field work at a departmentally acceptable agency involving field work experience.

8. The Program Director will participate in a student's placement solely in an advisory capacity.

Law Enforcement

30.305	30.306	30.307	English 1, 2, 3	9
19.301	19.302	19.303	Psychology 1, 2, 3	9
94.304	94.305		Criminal Investigation and Case Preparation 1, 2	6
94.325	94.326		Intro. to Criminalistics 1, 2	6
94.387	94.388		Administration of Justice 1, 2	6
94.391	94.392		Criminal Law 1, 2	6
94.410	94.411	94.412	Logical and Ethical Foundations of Decision Making 1, 2, 3	9

Correctional Practices

30.305	30.306	30.307	English 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
94.322	94.323		Correctional Administration 1, 2	6
94.327			The American Correctional System	3
94.338	94.339		Criminology 1, 2	6
94.387	94.388		Administration of Justice 1, 2	6
94.391	94.392		Criminal Law 1, 2	6
94.410	94.411	94.412	Logical and Ethical Foundations of Decision Making 1, 2, 3	9

Security

30.305	30.306	30.307	English 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
22.314			American Constitutional Law	3
45.301	45.302		Management & Organization 1, 2	6
94.304	94.305		Crim. Invest. and Case Prep. 1, 2	6
94.387	94.388		Administration of Justice 1, 2	6
94.391	94.392		Criminal Law 1, 2	6
94.403	94.404		Security Administration 1, 2	6

Correctional Practices (Major Code 944)**Bachelor of Science Degree****Basic Courses—Required****quarter hours**

19.301	19.302	19.303	Psychology 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
94.361	94.362		Law Enforcement Mathematics 1, 2	6
or			or	or
41.301	41.302		Accounting Principles 1, 2	6

Core Courses—Required

21.334			Social Control	3
21.347			Social Problems	3
94.410	94.411	94.412	Logical and Ethical Foundations of Decision Making 1, 2, 3	9
49.400	49.401		Human Relations in Organizations 1, 2	6

Core Electives

Select 33 quarter hours from the following:

19.324	19.325		Social Psychology 1, 2	6
19.341	19.342	19.343	Abnormal Psychology 1, 2, 3	9
20.301	20.302	20.303	Anthropology 1, 2, 3	9
21.353	21.354		Intergroup Relations 1, 2	6
21.356			Sociology of Inequality	3
21.357			Urban Sociology	3
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
22.314			American Constitutional Law	3
22.315			Civil Rights	3
22.316	22.317		Public Administration 1, 2	6
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
39.301	39.302	39.303	Economic Principles and Problems 1, 2, 3	9

Major Concentration Courses—Required

94.301			Human Rights in Corrections	3
94.303			Correctional Counseling	3
94.311	94.312		Advanced Correctional Practices 1, 2	6
94.327			The American Correctional System	3
94.330	94.331		Treatment of Offenders 1, 2	6
94.332	94.333		Correctional Administration 1, 2	6
94.338	94.339		Criminology 1, 2	6
94.341	94.342		Probation and Parole Practices 1, 2	6
94.387	94.388		Administration of Justice 1, 2	6
94.391	94.392		Criminal Law 1, 2	6

Elective Major Concentration Courses

A total of 36 quarter hours from the following courses. Not more than 18 quarter hours of seminar courses may be elected to satisfy this requirement.

94.302		Basic Statistics in Law Enforcement	3
94.316		The Law and Institutional Treatment	3
94.317		Comparative Correctional Systems	3
94.318	94.319	Law Enforcement Ident. and Records 1, 2	6
94.328	94.329	Social Deviance 1, 2	6
94.340		Delinquency Prevention	3
94.345	94.346	Juvenile Corrections 1, 2	6
94.357		Seminar in Correctional Practices	3
94.358		National Law Enforcement Seminar	3
94.359		Hospital Security	3
94.364		Seminar in L.E.—(Youth Crime Control)	3
94.365		Seminar in L.E.—(Victimology)	3
94.366		Seminar in L.E.—(International Crime Control)	3
94.367		Seminar in L.E.—(Grantsmanship)	3
94.368		Seminar in L.E.—(Operational Intelligence)	3
94.370		Seminar in L.E.—(Collective Bargaining)	3
94.371	94.372	Man, Law, and Society 1, 2	6
94.375		Seminar in L.E.—(Organized Crime)	3
94.376		Seminar in L.E.—(Minorities and the Urban Crisis)	3
94.377		Seminar in L.E.—(Criminal Behavior)	3
94.380		Seminar in L.E.—(Intervention Strategies)	3
94.383		Seminar in L.E.—(Drugs)	3
94.384		Seminar in L.E.—(Executive Development)	3
94.385		Seminar in L.E.—(Mental Health and the Police)	3
94.386		Seminar in L.E.—(Data Processing)	3
94.389	94.390	Civil Law in Criminal Justice 1, 2	6
94.393	94.394	Evidence and Court Procedure 1, 2	6
94.395	94.396	Fire Investigation and Arson 1, 2	6
94.397		Law Enforcement Fiscal Management	3
94.398		Massachusetts Criminal Law	3
94.399		Alcohol Problems in Law Enforcement	3
94.415		Domestic Violence	3
94.499		Field Work in Law Enforcement, Correctional Practices, and Security	6

Total Credits**174**

Additional departmental offerings on selections of intensive courses appear on pages 191 and 192.

Correctional Practices (Major Code 945)**Associate in Science Degree****Basic Courses—Required****quarter hours**

21.301	21.302	21.303	Sociology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9

Core Courses—Required

94.410	94.411	94.412	Logical and Ethical Foundations of Decision Making 1, 2, 3	9
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Core Electives

A total of 21 quarter hours from the following courses:

19.301	19.302	19.303	Psychology 1, 2, 3	9
19.324	19.325		Social Psychology 1, 2	6
19.341	19.342	19.343	Abnormal Psychology 1, 2, 3	9
21.334			Social Control	3
21.347			Social Problems	3
21.357			Urban Sociology	3
21.353	21.354		Intergroup Relations 1, 2	6
22.314			American Constitutional Law	3
22.315			Civil Rights	3
22.316	22.317		Public Administration 1, 2	6
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
49.400	49.401		Human Relations in Organizations 1, 2	6

Major Concentration Courses—Required

94.327		The American Correctional System	3
94.332	94.333	Correctional Administration 1, 2	6
94.338	94.339	Criminology 1, 2	6
94.387	94.388	Administration of Justice 1, 2	6
94.391	94.392	Criminal Law 1, 2	6

Elective Major Concentration Courses

A total of 21 quarter hours of credit from the following courses. Not more than 9 quarter hours of seminar courses may be elected to satisfy this requirement.

94.301		Human Rights in Corrections	3
94.303		Correctional Counseling	3
94.311	94.312	Advanced Correctional Practices 1, 2	6
94.316		The Law and Institutional Treatment	3
94.320		Basic Statistics in Law Enforcement	3
94.322		Research Methods in Criminal Justice	3
94.328	94.329	Social Deviance 1, 2	6
94.330	94.331	Treatment of Offenders 1, 2	6
94.340		Delinquency Prevention	3
94.341	94.342	Probation and Parole Practices 1, 2	6
94.345	94.346	Juvenile Corrections 1, 2	6
94.357		Seminar in Correctional Practices	3
94.358		The National Law Enforcement Seminar	3
94.365		Seminar in L. E.—(Victimology)	3
94.371	94.372	Man, Law, and Society 1, 2	6

94.377		Seminar in L.E.—(Criminal Behavior)	3
94.383		Seminar in L.E.—(Drugs)	3
94.386		Seminar in L.E.—(Data Processing)	3
94.393	94.394	Evidence and Court Procedure 1, 2	6
94.399		Alcohol Problems in Law Enforcement	3
94.415		Domestic Violence	3
94.499		Field Work in Law Enforcement, Correctional Practices, and Security	6

Total Credits	96
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Additional departmental offerings on selections of intensive courses appear on pages 191 and 192.

Law Enforcement (Major Code 940)**Bachelor of Science Degree****Basic Courses—Required****quarter hours**

19.301	19.302	19.303	Psychology 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
94.361	94.362		Law Enforcement Mathematics 1, 2	6
or			or	or
41.301	41.302		Accounting Principles 1, 2	6

Core Courses—Required

94.410	94.411	94.412	Logical and Ethical Foundations of Decision Making 1, 2, 3	9
39.301	39.302	39.303	Economic Principles and Problems 1, 2, 3	9

Elective Core Courses

A total of 33 quarter hours from the following courses:

19.324	19.325		Social Psychology 1, 2	6
19.341	19.342	19.343	Abnormal Psychology 1, 2, 3	9
21.334			Social Control	3
21.347			Social Problems	3
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
22.314			American Constitutional Law	3
22.315			Civil Rights	3
22.316	22.317		Public Administration 1, 2	6
22.328			Procedural Due Process	3
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
29.307			Business and Professional Speaking	3
32.420			Conversational Spanish for the Law Enforcement Professional	3
39.342			Economics of Crime	3
49.400	49.401		Human Relations in Organizations 1, 2	6
49.403			Advanced Human Relations	3

Major Concentration Courses—Required

94.304	94.305		Criminal Invest. and Case Prep. 1, 2	6
94.308	94.309		Interviews and Interrogations 1, 2	6
94.325	94.326		Intro. to Criminalistics 1, 2	6
94.338	94.339		Criminology 1, 2	6
94.343	94.344		L.E. Management and Planning 1, 2	6
94.371	94.372		Man, Law, and Society 1, 2	6
94.387	94.388		Administration of Justice 1, 2	6
94.391	94.392		Criminal Law 1, 2	6

Elective Major Concentration Courses

A total of 42 quarter hours from the following courses. Not more than 18 quarter hours of seminar courses may be elected to satisfy this requirement.

94.302		Basic Statistics in Law Enforcement	3
94.306		Comparative Police Systems	3
94.314	94.315	Traffic Safety and Control 1, 2	6
94.318	94.319	L.E. Identification and Records 1, 2	6
94.320		Police Public Relations	3
94.321		Police Community Relations	3
94.322		Research Methods in Criminal Justice	3
94.323	94.324	The Patrol Function 1, 2	6
94.328	94.329	Social Deviance 1, 2	6
94.335		Investigative Report Writing	3
94.336		Police Supervision	3
94.337		Police Work with Juveniles	3
94.340		Delinquency Prevention	3
94.358		National Law Enforcement Seminar	3
94.364		Seminar in L.E.—(Youth Crime Control)	3
94.365		Seminar in L.E.—(Victimology)	3
94.366		Seminar in L.E.—(International Crime Control)	3
94.367		Seminar in L.E.—(Grantsmanship)	3
94.368		Seminar in L.E.—(Operational Intelligence)	3
94.370		Seminar in L.E.—(Collective Bargaining)	3
94.374		Seminar in L.E.—(Interviewing Practicum)	3
94.375		Seminar in L.E.—(Organized Crime)	3
94.376		Seminar in L.E.—(Minorities and the Urban Crisis)	3
94.377		Seminar in L.E.—(Criminal Behavior)	3
94.378		Seminar in L.E.—(Prosecutive Development)	3
94.379		Seminar in L.E.—(Forensic Laboratory)	3
94.380		Seminar in L.E.—(Intervention Strategies)	3
94.381	94.382	Civil Liberties and the Police 1, 2	6
94.383		Seminar in L.E.—(Drugs)	3
94.384		Seminar in L.E.—(Executive Development)	3
94.385		Seminar in L.E.—(Mental Health and the Police)	3
94.386		Seminar in L.E.—(Data Processing)	3
94.389	94.390	Civil Law in Criminal Justice 1, 2	6
94.393	94.394	Evidence and Court Procedure 1, 2	6
94.395	94.396	Fire Investigation and Arson 1, 2	6
94.397		Law Enforcement Fiscal Management	3
94.398		Massachusetts Criminal Law	3
94.399		Alcohol Problems in Law Enforcement	3
94.415		Domestic Violence	3
94.499		Field Work in Law Enforcement, Correctional Practices, and Security	6

Total Credits**174**

Additional departmental offerings on selections of intensive courses appear on pages 191 and 192.

Law Enforcement (Major Code 941)**Associate in Science Degree****Basic Courses—Required****quarter hours**

19.301	19.302	19.303	Psychology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9

Core Courses—Required

94.410	94.411	94.412	Logical and Ethical Foundations of Decision Making 1, 2, 3	9
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Elective Core Courses

A total of 21 quarter hours from the following courses:

19.324	19.325		Social Psychology 1, 2	6
19.341	19.342	19.343	Abnormal Psychology 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
21.334			Social Control	3
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
22.314			American Constitutional Law	3
22.315			Civil Rights	3
22.316	22.317		Public Administration 1, 2	6
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
29.307			Business and Professional Speaking	3
32.420			Conversational Spanish for the Law Enforcement Professional	3

Major Concentration Courses Required

94.304	94.305		Criminal Invest. and Case Prep. 1, 2	6
94.325	94.326		Introduction to Criminalistics 1, 2	6
94.387	94.388		Administration of Justice 1, 2	6
94.391	94.392		Criminal Law 1, 2	6

Elective Major Concentration Courses

A total of 24 quarter hours from the following courses. Not more than 6 quarter hours of seminar courses may be elected to satisfy this requirement.

94.302			Basic Statistics in Law Enforcement	3
94.308	94.309		Interviews and Interrogations 1, 2	6
94.314	94.315		Traffic Safety and Control 1, 2	6
94.320			Police Public Relations	3
94.321			Police Community Relations	3
94.322			Research Methods in Criminal Justice	3
94.323	94.324		The Patrol Function 1, 2	6
94.328	94.329		Social Deviance 1, 2	6
94.335			Investigative Report Writing	3
94.336			Police Supervision	3
94.337			Police Work with Juveniles	3
94.338	94.339		Criminology 1, 2	6
94.340			Delinquency Prevention	3
94.358			National Law Enforcement Seminar	3

94.365		Seminar in L.E.—(Victimology)	3
94.371	94.372	Man, Law, and Society 1, 2	6
94.377		Seminar in L.E.—(Criminal Behavior)	3
94.383		Seminar in L.E.—(Drugs)	3
94.386		Seminar in L.E.—(Data Processing)	3
94.389	94.390	Civil Law in Criminal Justice 1, 2	6
94.393	94.394	Evidence and Court Procedure 1, 2	6
94.395	94.396	Fire Investigation and Arson 1, 2	6
94.398		Massachusetts Criminal Law	3
94.399		Alcohol Problems in Law Enforcement	3
94.415		Domestic Violence	3
94.499		Field Work in Law Enforcement, Correctional Practices, and Security	6

Total Credits**96**

Additional departmental offerings on selections of intensive courses appear on pages 191 and 192.

Security (Major Code 942)**Bachelor of Science Degree****Basic Courses—Required**

quarter hours

19.301	19.302	19.303	Psychology 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
39.301	39.302	39.303	Economic Principles and Problems 1, 2, 3	9

Core Courses—Required

22.314			American Constitutional Law	3
41.301	41.302		Accounting Principles 1, 2	6
or			or	or
94.361	94.362		Law Enforcement Mathematics 1, 2	6
45.301	45.302		Management & Organization 1, 2	6

Elective Core Courses

A total of 36 quarter hours from the following courses:

19.332	19.333	19.334	Industrial Psychology 1, 2, 3	9
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
22.315			Civil Rights	3
22.316	22.317		Public Administration 1, 2	6
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
26.331	26.332	26.333	Ethics 1, 2, 3	9
26.334			Logic	3
29.307			Business and Professional Speaking	3
44.301			Introduction to Finance	3
45.405			Industrial Safety	3
49.310	49.311		Electronic Data Processing 1, 2	6
49.337			Privacy and Security (Computer Security)	3
49.420	49.421		Labor Management Relations 1, 2	6

Major Concentration Courses—Required

94.304	94.305		Criminal Invest. and Case Prep. 1, 2	6
94.307			Intro. to Industrial Security	3
94.308	94.309		Interviews and Interrogations 1, 2	6
94.352	94.353		Physical Security 1, 2	6
94.387	94.388		Administration of Justice 1, 2	6
94.391	94.392		Criminal Law 1, 2	6
94.393	94.394		Evidence and Court Procedure 1, 2	6
94.403	94.404		Security Administration 1, 2	6
94.406			Legal Aspects of Security Operations	3

Elective Major Concentration Courses

A total of 39 quarter hours from the following courses. Not more than 18 quarter hours of seminar courses may be elected to satisfy this requirement.

94.318	94.319	Law Enforcement Ident. and Records 1, 2	6
94.322		Research Methods in Criminal Justice	3
94.323	94.324	The Patrol Function 1, 2	6
94.325	94.326	Introduction to Criminalistics 1, 2	6
94.328	94.329	Social Deviance 1, 2	6
94.335		Investigative Report Writing	3
94.338	94.339	Criminology 1, 2	6
94.340		Delinquency Prevention	3
94.343	94.344	Law Enforcement Mgmt. and Planning 1, 2	6
94.350		Document Control	3
94.351		Industrial Fire Prevention	3
94.354		Retail Security	3
94.355		Bank Security Measures	3
94.358		National Law Enforcement Seminar	3
94.359		Hospital Security	3
94.360		Seminar in Security—(Current Problems)	3
94.365		Seminar in L.E.—(Victimology)	3
94.368		Seminar in L.E.—(Operational Intelligence)	3
94.370		Seminar in L.E.—(Collective Bargaining)	3
94.371	94.372	Man, Law, and Society 1, 2	6
94.375		Seminar in L.E.—(Organized Crime)	3
94.377		Seminar in L.E.—(Criminal Behavior)	3
94.389	94.390	Civil Law in Criminal Justice 1, 2	6
94.395	94.396	Fire Investigation and Arson 1, 2	6
94.407		Introduction to Government Security	3
94.415		Domestic Violence	3
94.499		Field Work in Law Enforcement, Correctional Practices, and Security	6

Total Credits**174**

Additional departmental offerings on selections of intensive courses appear on pages 191 and 192.

Security (Major Code 943)**Associate In Science Degree****quarter hours****Basic Courses—Required**

21.301	21.302	21.303	Sociology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9

Core Courses—Required

22.314			American Constitutional Law	3
45.301	45.302		Management & Organization 1, 2	6

Elective Core Courses

A total of 21 quarter hours from the following courses:

19.301	19.302	19.303	Psychology 1, 2, 3	9
19.332	19.333	19.334	Industrial Psychology 1, 2, 3	9
22.315			Civil Rights	3
22.316	22.317		Public Administration 1, 2	6
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
23.304	23.305	23.306	American History 1, 2, 3	9
26.331	26.332	26.333	Ethics 1, 2, 3	9
26.334			Logic	3
29.307			Business and Professional Speaking	3
41.301	41.302		Accounting Principles 1, 2	6
44.301			Introduction to Financial Management	3
45.405			Industrial Safety	3
49.310	49.311		Electronic Data Processing 1, 2	6
49.420	49.421		Labor Management Relations 1, 2	6

Major Concentration Courses—Required

94.304	94.305		Criminal Invest. and Case Prep. 1, 2	6
94.307			Intro. to Industrial Security	3
94.387	94.388		Administration of Justice 1, 2	6
94.391	94.392		Criminal Law 1, 2	6
94.403	94.404		Security Administration 1, 2	6
94.406			Legal Aspects of Security Operations	3

Elective Major Concentration Courses

A total of 18 quarter hours of credit from the following courses. Not more than 9 quarter hours of seminar courses may be elected to satisfy this requirement.

94.307			Intro. to Industrial Security	3
94.308	94.309		Interviews and Interrogations 1, 2	6
94.323	94.324		The Patrol Function 1, 2	6
94.325	94.326		Introduction to Criminalistics 1, 2	6
94.335			Investigative Report Writing	3
94.338	94.339		Criminology 1, 2	6
94.340			Delinquency Prevention	3
94.343	94.344		Law Enforcement Mgmt. and Planning 1, 2	6
94.350			Document Control	3
94.351			Industrial Fire Prevention	3
94.352	94.353		Physical Security 1, 2	6
94.354			Retail Security	3

94.355		Bank Security Measures	3
94.358		National Law Enforcement Seminar	3
94.360		Seminar in Security (Current Problems)	3
94.365		Seminar in L.E.—(Victimology)	3
94.368		Seminar in L.E.—(Operational Intelligence)	3
94.371	94.372	Man, Law, and Society 1, 2	6
94.375		Seminar in L.E.—(Organized Crime)	3
94.377		Seminar in L.E.—(Criminal Behavior)	3
94.389	94.390	Civil Law in Criminal Justice 1, 2	6
94.393	94.394	Evidence and Court Procedure 1, 2	6
94.395	94.396	Fire Investigation and Arson 1, 2	6
94.406		Legal Aspects of Security Operations	3
94.407		Introduction to Government Security Prog.	3
94.415		Domestic Violence	3
94.499		Field Work in Law Enforcement, Correctional Practices, and Security	6

Total Credits	96
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Additional departmental offerings on selections of intensive courses appear on pages 191 and 192.

Health Professions Programs

Marjorie Koretsky, Associate Dean
Director, Health Professions Programs
Telephone 437-2425

Consultants

Prof. Bynum Jackson, (College of Pharmacy and Allied Health), 437-3321
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Aims

Programs in Allied Health are offered through University College to help students prepare for advancement and service in hospitals and other health agencies through part-time study.

Degree programs, both associate and baccalaureate, are designed to provide professional specialization and general educational development. All programs are designed to meet the accreditation standards of the Committee on Allied Health Education and Accreditation (C.A.H.E.A.) of the American Medical Association and of licensing or registration boards where such exist.

The Committee on Allied Health Education is responsible for adopting essentials (minimal standards for A.M.A. accreditation) for allied health education programs with the advice of A.M.A. section councils, medical specialty societies, and allied health organizations. The U.S. Commissioner of Education and the nongovernmental Council on Post-secondary Accreditation recognize the A.M.A. and collaborating organizations to accredit educational programs for established allied health occupations.

Course Distribution

It is the goal of Northeastern University to offer students a balanced educational background. To this end, the following curriculum design will be in effect for most programs:

Professional and professionally related	35–50%
Basic and Allied Sciences	25–40%
Liberal Arts (nonscience)	25–40%

Students will choose electives to fulfill course distribution requirements and to equal the number of credits required for the specific degree.

Clinical Assignments

Clinical assignments are generally available for students whose programs require directed applied study in a clinical setting. In most instances didactic information is presented at the University while clinical practice is at various hospitals or other health agencies in the Greater Boston community. Positions for applied clinical studies are often offered on a competitive basis, with the student's academic performance in both didactic and basic professional courses used as the basis for the student's acceptance. Academic credit earned during the practicum is usually applicable toward the degree requirement.

Students accepting clinical assignments in health facilities are expected to adhere to requirements of the facility, all of which are outside University control.

Health Science (Major Code 865)**Bachelor of Science Degree****quarter hours**

The Bachelor of Science Degree in Health Science is available to students holding registration or licensure (as defined by University regulations) in a specific health profession and trained in an approved program accredited by the appropriate medical association (American Medical Association, National League of Nursing, American Dental Association, etc.)

All students in this program should consult with an academic adviser.

Distribution Requirements for the B.S. Degree**quarter hours**

Liberal Arts (nonscience)	42
Sciences	44
Professional and professionally related	45-48
Electives and/or transfer credit	40-43
To equal	174

A. Liberal Arts (Nonscience)**Required**

30.305	30.306	30.307	English 1, 2, 3	9
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Humanities (Recommended Courses)

9

To be selected from areas beginning with the numbers:

- 26. Philosophy and Religion
- 27. Fine Arts
- 28. Music
- 29. Speech and Theatre Arts
- 30. English
- 31.-34. Modern Languages
- 38. Journalism

Social Sciences (Recommended Courses)

9

To be selected from areas beginning with the numbers:

- 19. Psychology
- 20. Anthropology
- 21. Sociology
- 22. Political Science
- 23. History
- 25. Social Welfare
- 39. Economics

Electives in above areas

15

B. Sciences**Required Basic**

18.411	18.412		Biology 1, 2	8
18.424	18.425	18.426	Anatomy & Physiology 1, 2, 3	9
18.421			Microbiology 1	3
10.627	10.628		Mathematics 1, 2	6
12.444	12.445	12.446	General Chemistry 1, 2, 3	9
or			or	or
12.407	12.408	12.409	Modern Chemistry 1, 2, 3	9

Required Advanced

To be taken after matriculation in B.S. program, and to be determined by profession.

Select 9 q.h. from the following:

18.431	18.432	18.433	Cell Biology 1, 2, 3	9
18.438			Immunology	4
18.420			Medical Microbiology	4
18.457	18.458	18.459	Genetics 1, 2, 3	8
12.431	12.432		Organic Chemistry 1, 2	8
86.346			Advanced Nutrition	3
86.347			Advanced Pharmacology	3
18.451	18.452	18.453	Histology-Organology 1, 2, 3	6
18.474	18.475		Advanced Human Physiology 1, 2	6
87.310	87.311	87.312	Hematology: Morphologic Hematology 1, 2	9

C. Professional and Professionally Related**General Core Required**

86.303	86.304	Foundations of Medical Science 1, 2	6
86.305		Health Science Statistics	3

General Core Options

Select 18 q.h. from the following:

63.330		Process of Aging	3
86.306		Hospital Law & Ethics	3
86.320	86.321	Principles and Practices of Comm. Health 1, 2	6
86.322		Principles and Practices of Comm. Mental Health	3
86.323	86.324	Public Health 1, 2	6
86.325		Health Care Delivery	3
86.326	86.327	Contemporary and Controversial Health Care Issues 1, 2	6
87.313		Epidemiology 1	3
86.329		Environmental Problems and Health	3
86.381		Basic Pharmacology	3
86.380		Basic Nutrition	3

General Educational and Administrative—Required

86.307	86.308	Hospital Organization & Management 1, 2	6
86.330	86.331	Health Science Education 1, 2	6

Advanced Professional Options

Courses in professional, health education, or health administration areas to be taken after matriculation in B.S.

Select 6–9 q.h. from the following:

86.348	86.349	Health Care Finance 1, 2	6
86.310	86.311	Applied Health Care Management 1, 2	6
86.322		Methods and Materials of Public Health Education	3
86.333	86.334	Medical Care and Current Social Problems 1, 2	6
86.337		Oral Microbiology	3
86.338	86.339	Advanced Periodontology 1, 2	6
87.314		Epidemiology 2	3
86.312	86.313	Communications for Health Care Personnel 1, 2	6

D. Electives

Electives and/or transfer credits to equal

Health Management (Major Code 860)**Bachelor of Science Degree****quarter hours**

Includes special concentration of professional courses to prepare for licensure examination in Long Term Care Administration.

Distribution Requirements for the B.S. Degree

Basic Courses	33
Arts and Sciences	45
Management	33
Health Care Administration	30
Health Care Management Concentration Option 1 or 2	33

Basic Courses—Required

10.627	10.628		Mathematics 1, 2	6
19.301	19.302	19.303	Psychology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
39.301	39.302	39.303	Economic Principles and Problems 1, 2, 3	9

Arts and Sciences Core Courses—Required

18.411	18.412	18.413	Biology 1, 2, 3	12
18.424	18.425	18.426	Anatomy & Physiology 1, 2, 3	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
			Social Science or Humanities Electives	15

Management Courses—Required

86.305		Health Science Statistics	3
41.301	41.302	Accounting Principles 1, 2	6
44.301		Introduction to Financial Management 1	3
45.301		Management & Organization 1	3
49.310		Electronic Data Processing 1	3
86.312	86.313	Communications for Health Care Personnel 1, 2	6
49.404		Personnel Management 1	3
49.373		Information Processing in Medicine	3
45.303		Principles and Practices of Management	3

Health Care Administration Courses—Required

86.306		Hospital Law & Ethics	3
86.348	86.349	Health Care Finance 1, 2	6
86.303	86.304	Foundations of Medical Science 1, 2	6
86.300		Medical Terminology Survey	3
86.307	86.308	Hospital Organization & Management 1, 2	6
86.320		Principles and Practices of Community Health 1	3
86.325		Health Care Delivery	3

quarter hours**Option 1 Long Term Care Administration**

For licensure as a nursing home administrator, the Board of Registration of Nursing Home Administrators in Massachusetts requires an internship, a licensure examination, and, as of January 1, 1978, a baccalaureate degree. The required courses in this option help prepare the student for the licensure examination in Massachusetts.

Required Courses

86.340	86.341	86.342	Long Term Care Administration 1, 2, 3	9
86.343	86.344	86.345	Long Term Care Administration 4, 5, 6	9
21.363			Social Gerontology	3

Electives

Select 12 quarter hours from the following, or other electives with permission of adviser.

63.301	63.302	63.303	Principles & Practices of Therapeutic Recreation 1, 2, 3	9
86.381			Basic Pharmacology	3
86.380			Basic Nutrition Care	3
86.310	86.311		Applied Health Care Management 1, 2	6
86.328			Home Health Care	3
86.329			Environmental Problems and Health	3

Option 2 Community Health Management**Required Courses**

86.310	86.311	Applied Health Care Management 1, 2	6
86.321		Principles and Practices of Community Health 2	3
87.313		Epidemiology 1	3
86.323		Public Health 1	3

Electives

Select 18 quarter hours from the following, or other electives with permission of adviser.

86.322		Principles and Practices of Community Mental Health	3
86.324		Public Health 2	3
86.326	86.327	Contemporary and Controversial Health Care Issues 1, 2	6
86.328		Home Health Care	3
86.329		Environmental Problems and Health	3
21.360		Medical Sociology	3
87.314		Epidemiology 2	3
86.381		Basic Pharmacology	3
86.380		Basic Nutrition	3

Total Credits**174**

Health/Medical Record Administration

Program Director: Prof. Judith Weilerstein, College of Pharmacy and Allied Health
Academic Coordinator: Annalee Collins

The Profession The health/medical record administrator has varied responsibilities relating to health information systems. He/she may organize, operate, and manage medical record services. The program offers the student the opportunity to develop the capability to design health information and retrieval systems; to plan, organize, and direct medical record services; to develop, analyze, and evaluate medical records and indexes; to work with medical and administrative staffs in developing methods for evaluation of patient care, and in research projects utilizing health care information.

The Health/Medical Record Administration Program leading to a B.S. degree has been in effect at Northeastern University since 1966. The professional certification program, open to students already holding baccalaureate degrees and offering

the required professional courses, was instituted in 1967.

Northeastern University's Programs in Health Record Administration are approved by the Committee on Allied Health Education and Accreditation in cooperation with the American Medical Record Association.

Candidates who wish to matriculate in this program must be interviewed by the Program Director. Arrangements for this interview may be made through the Health Records Office, 205 Mugar Building. No candidate will be considered as matriculated until this requirement has been met.

In designated professional courses (*), students must obtain a grade of C or better. Only one professional course may be repeated. Students who receive a grade of D in more than one will be asked to withdraw from the program.

Students applying for the clinical sequence of courses (86.375, 85.360, 86.376) must have a quality point average of 2.5 and the approval of their assigned Health Record Program adviser.

Health/Medical Record Administration (Major Code 861)

Bachelor of Science Degree

quarter hours

Completion of this program qualifies a student for admission to the professional registration examinations conducted by the American Medical Record Association.

Basic Courses—Required

10.627	10.628		Mathematics 1, 2	6
19.301	19.302	19.303	Psychology 1, 2, 3	9
30.305	30.306	30.307	English 1, 2, 3	9
39.301	39.302	39.303	Economic Principles and Practices 1, 2, 3	9

Arts and Sciences Core Courses—Required

18.411	18.412	18.413	Biology 1, 2, 3	12
18.424	18.425	18.426	Anatomy & Physiology 1, 2, 3*	9
21.301	21.302	21.303	Sociology 1, 2, 3	9
22.403			Introduction to Politics	3
22.404			Introduction to American Government	3
22.405			Introduction to Comparative Government	3
23.301	23.302	23.303	History of Civilization 1, 2, 3	9
39.311	39.312		Statistics 1, 2*	6
Humanities			Arts, English, Language, Philosophy, Music	9

Professional and Professionally Related Courses—Required

49.310			Electronic Data Processing 1	3
49.400			Human Relations in Organizations 1	3
86.362			Hospital Management for Medical Record Administrators*	3
86.358			Medical Record Computer Science*	3
86.306			Hospital Law and Ethics*	3
86.303	86.304		Foundations of Med. Science 1, 2*	6

86.301	86.302		Medical Terminology 1, 2*†	4
86.353	86.354		Organization of the Medical Record Department 1, 2*	6
86.370	86.371	86.372	Medical Record Science 1, 2, 3*	18
86.373	86.374		Medical Record Science 4, 5*	12
86.375	86.360	86.376	Applied Medical Record Science 1, 2, 3*	8
86.368			Topics in Health Records	3

Elective Courses**22****Total Credits****181****Health/Medical Record Administration Certificate Program (Major Code 862)**

Candidates who wish to qualify for admission to the professional examination leading to registration as a Medical Record Administrator, RRA, and who already hold a baccalaureate in another field of study from a college or university acceptable to Northeastern University, may undertake the following course work. Graduates of approved schools in medical record administration are eligible for the national registration examination given by AMRA. Passing this examination gives professional recognition as a Registered Record Administrator (RRA). Successful completion of this course sequence with a cumulative point average of 2.5 will lead to certification from University College that the candidate has completed a professional program in Health Record Science. In addition to the required courses listed below, candidates must complete one year of a natural science, such as biology, chemistry, or microbiology, and a course in descriptive statistics. These requirements are in addition to the laboratory course in anatomy and physiology.

Candidates who wish to matriculate in this program must be interviewed by the Program Adviser.

Arrangements for this interview may be made through the Health Records Office, 205 Mugar Building. No candidate will be considered as matriculated until this requirement has been met.

Note: In addition to the required course work, proof of understanding of principles of descriptive statistics must be demonstrated. This requirement may be satisfied by successful completion of an approved statistics course at Northeastern or another university, or completion of University College course 39.311, Statistics I, with a grade of C or better.

Courses Required for Professional Certification In the professional courses listed below, students must obtain a grade of C or better. Only one professional course may be repeated. Students who receive a grade of D in more than one course will be asked to withdraw from the program.

Students applying for the clinical sequence of courses (86.375, 86.360, 86.376) must have a quality point average of 2.5 and the approval of their assigned Health Record Program adviser.

Courses Required for Professional Certification**quarter hours**

18.424	18.425	18.426	Anatomy & Physiology 1, 2, 3	9
86.306			Hospital Law & Ethics	3
86.303	86.304		Foundations of Medical Science 1, 2	6
86.301	86.302		Medical Terminology 1, 2†	4
86.370	86.371	86.372	Medical Record Science 1, 2, 3	18
86.373	86.374		Medical Record Science 4, 5	12
86.353	86.354		Organization of the Medical Records Dept. 1, 2	6
86.362			Hospital Management for Medical Record Administrators	3
49.310			Electronic Data Processing 1	3
86.358			Medical Record Computer Science	3
86.375	86.360	86.376	Applied Medical Record Science 1, 2, 3	8
86.325			Health Care Delivery	3
86.368			Topics in Health Records	3

Total Credits**81**

†Challenge examination available for 86.301, 86.302 by special arrangement with Health Records Office, 617-437-3663.

Medical Laboratory Science—Medical Technology

The Profession Medical Laboratory Science is concerned with laboratory examination of material necessary for proper monitoring of health and for the diagnosis and treatment of illness. Working in a variety of specialized fields such as microbiology, blood banking, hematology, clinical chemistry, or as generalists in all these areas, medical laboratory technicians and technologists are respected and important health professionals.

The associate degree medical laboratory technician works under the direct supervision of a medical technologist and performs most of the common medical laboratory tests. The bachelor's degree medical technologist is considered qualified to perform, with little or no direct supervision, levels of laboratory tests from the simplest to the most complex. With additional education or experience, medical technologists can also function as educators, researchers, or supervisors. In their individual roles, medical technicians and technologists hold positions in hospital, private, and research laboratories. Some serve as sales and technical representatives for scientific supply and equipment companies.

Both the associate degree and bachelor's degree programs are conducted in affiliation with hospitals in the Boston area, and are approved by the National Accrediting Agency for Clinical Laboratory Sciences, and the Committee on Allied Health Education and Accreditation. Upon successful completion of one of these programs, the student receives either the Associate in Science or Bachelor of Science degree and is eligible to take a national certification examination given by either the National Certification Agency for Medical Laboratory Personnel or the Board of Registry of the American Society of Clinical Pathology.

The basic medical laboratory science, basic science, and general education courses are offered evenings, but the advanced medical laboratory science courses and the clinical experience are only offered full time during the day.

Prerequisite: Satisfactory completion of the Mathematics Placement Test or Introduction to Mathematics 1 and 2 (courses 10.681, 10.682).

Professional Requirements for the Associate Degree-Medical Laboratory Technician A clinical applied study program or appropriate substitute work experience is a required component of this degree. Work experience is acceptable if it meets the certification requirements of either the

National Certification Agency for Medical Laboratory Personnel or the Board of Registry of the American Society of Clinical Pathologists. For students without appropriate work experience, clinical applied studies are generally available through the College of Pharmacy and Allied Health Professions.

Prerequisites for the clinical applied studies are a minimum of a 2.0 quality point average in the required courses and a C or better in the basic Medical Laboratory Science courses (MLS, see below). These basic courses are available during the evening and are offered directly through the College of Pharmacy and Allied Health Professions. Students register as special students in the Basic College at Northeastern University and tuition will be the same as that charged for all Basic College MLS professional courses. These courses should be completed within three years of applying to the AD-MLT Clinical Applied Studies.

Students must apply for the six-month associate degree Medical Laboratory Technician Clinical Applied Studies one year in advance of the anticipated time of entry into the courses. Students register as special students in the Basic College and tuition is at the Basic College rate.

Professional Requirements for the Bachelor of Science Degree Clinical applied study courses are available only full time during the day and are offered directly through the College of Pharmacy and Allied Health Professions. Students must apply for the applied study component one year in advance of the anticipated time of entry into the applied study. A minimum of four quarters of full-time study is required for completion of the program. During this time the student must meet the requirements of the last four quarters of the undergraduate Basic College curriculum. Students register as special students in the Basic College, and tuition is the same as that charged for all Basic College medical laboratory science professional courses.

Prerequisites for the clinical applied study component include completion of all basic MLS courses with a C or better grade within five years of application to the applied study and completion of all other courses with a quality point average of 2.5 or higher.

**Medical Laboratory Science—Medical Laboratory Technician
(Major Code 800)**
Associate Degree
quarter hours
General

30.305	30.306	30.307	English 1, 2, 3	9
86.333			Medical Care and Current Social Problems	3
86.306			Hospital Law and Ethics	3
10.607	10.608		College Algebra and Introduction to Calculus	8

Biology

18.411	18.412	18.413	Biology 1, 2, 3	12
18.424	18.425	18.426	Human Anatomy & Physiology	9
18.421			Microbiology 1	3

Chemistry

12.444	12.445	12.446	General Chemistry 1, 2, 3	9
12.427			Analytical Chemistry	4

MLS

87.300			Medical Laboratory Science Orientation	2
87.101			Basic Medical Laboratory Science	4
87.102			Basic Hematology	2
87.103			Basic Immunohematology	2
87.104			Basic Clinical Microbiology	4
87.105			Basic Clinical Chemistry	4

Electives

			Humanities	6
			Social Science	3
			Free	6

Total Credits
93

Medical Technology (Major Code 801)				Bachelor of Science
Credits from Associate Degree in Medical Laboratory Technician Program				quarter hours
				93
Biology				
18.457	18.458	18.459	Genetics 1, 2, and Lab	8
18.431	18.432	18.433	Cell Biology 1, 2, and Lab	8
18.438			Immunology	4
Chemistry				
12.431	12.432	12.433	Organic Chemistry 1, 2, 3	12
Epidemiology				
87.313			Epidemiology 1	3
Physics				
11.604	11.605	11.606	General Physics 1, 2, 3	6
87.302			Basic MLS Electronics & Instrumentation	2
Electives				
			Humanities	3
			Social Science	3
			Free	6
Clinical Applied Study				
See explanation on page 108.				
87.162			Applied Hematology	3
87.163			Applied Immunohematology	2
87.164			Applied Clinical Microbiology	5
87.165			Applied Clinical Chemistry	5
87.190			MLS Undergraduate Research	2
87.191			MLS Current Special Topics	1
87.204			Medical Parasitology	2
87.221			MLS Administration	2
87.224	87.234	87.244	Clinical Microbiology 2, 3, 4	6
87.225	87.235	87.245	Clinical Chemistry 2, 3, 4	6
87.226			MLS Education	2
87.232	87.242		Hematology 3, 4	5
87.253			Immunohematology	2
87.280			MLS Special Topics	2
87.281			MLS Senior Seminar	2
Total Credits				195

Medical Laboratory Science—Hematology

The Profession Hematology is a specialty in the broader field of medical laboratory science. Hematology technologists may be employed in hospitals and clinical laboratories where they perform specific laboratory tests—including differential cell counts, bone marrow examinations, and other complex hematologic determinations—that aid in the diagnosis, treatment, and follow-up of infections, anemias, and leukemias. The hematology technologist may also perform coagulation studies which aid the diagnosis and treatment of bleeding disorders and the treatment of patients on anticoagulant therapy. The modern hematology laboratory is usually well equipped with electronic instruments which the technologist must operate and maintain. Additional responsibilities may include laboratory quality control and associated problem solving.

The current requirements for categorical certification in hematology are indicated by the Board of

Registry of the American Society of Clinical Pathologists.

Students should contact the American Society of Clinical Pathologists, Board of Registry, P.O. Box 4872, Chicago, Illinois 60680, for details concerning their eligibility to write the hematology examination.

The curriculum in hematology does not incorporate a clinical or applied study component, but is primarily designed for those who work in this field, giving them the opportunity to earn a baccalaureate degree with a concentration in the area of interest.

The Medical Laboratory Science professional courses, numbered in the 87.100 and 87.200 series, will be offered directly through the College of Pharmacy and Allied Health Professions. Students must register as special students of that Basic College and tuition will be the same as that charged for all Basic College Medical Laboratory Science professional courses. A grade of C or better is required in the professional courses.

Hematology (Major Code 807)

Bachelor of Science Degree

quarter hours

Biology

18.411	18.412	18.413	Biology 1, 2, 3	12
18.424	18.425	18.426	Human Anatomy and Physiology	9
18.421			Microbiology 1	3
18.457	18.458	18.459	Genetics 1, 2, and Lab	8
18.431	18.432	18.433	Cell Biology	8
18.438			Immunology	4

Math

10.607	10.608		College Algebra and Introduction to Calculus	8
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Chemistry

12.444	12.445	12.446	General Chemistry 1, 2, 3	9
12.427			Analytical Chemistry (Summer Intensive)	4
			or	or
12.421	12.422	12.423	Analytical Chemistry 1, 2, 3	9
12.431	12.432	12.433	Organic Chemistry 1, 2, 3	12

Physics

11.604	11.605	11.606	General Physics 1, 2, 3	6
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English

30.305	30.306	30.307	English 1, 2, 3	9
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Medical Laboratory Science

87.300		MLS Orientation (to be taken if not working in the field)	2
87.101*		Basic MLS	4
87.102*		Basic Hematology	2
87.104*		Basic Clinical Microbiology	4
87.103*		Basic Immunohematology	2
87.105*		Basic Clinical Chemistry	4
87.190*		Undergraduate Research	2
87.204*		Parasitology (offered days only)	2
87.211*		Coagulation	2
87.213*		Immunohematology	2
87.222*		Histochemistry	2
87.302		Basic MLS Electronics & Instrumentation	2
87.311	87.312	Morphologic Hematology 1, 2	6
86.330	86.331	Health Science Education 1, 2	6
87.301		Quality Control	3
*Day school tuition			

Health Related

86.306		Hospital Law and Ethics	3
86.333	86.334	Medical Care and Current Social Problems	6
86.307	86.308	Hospital Organization and Management 1, 2	6

Electives

Humanities	9
Social Science	9
Free electives	18

Strongly recommended electives are: histology, psychology, economics, sociology, statistics, hematology, computer course, epidemiology.

Total credits**188**

Medical Laboratory Science—Cytotechnology

The Profession Cytotechnology is a specialty in the broader field of medical laboratory science. Cytotechnologists are normally employed in pathology laboratories, where they expertly examine slides of cells for minute abnormalities that are the early warning signs of cancer and related diseases. Cytotechnology occupies an important place in clinical medicine, requiring a technologist with specialized laboratory training and a sound academic background.

The clinical program, offered through University College and conducted in affiliation with several hospitals comprising the Boston School of Cytotechnology, is offered only full time during the day and leads to a certificate which is awarded by University College. Completion of the program qualifies a student for admission to the professional examination conducted by the Board of Registry of the American Society of Clinical Pathologists.

The program begins in September. Students planning to apply are advised to consult the pro-

gram coordinator prior to the preceding winter quarter.

Eligibility All applicants must meet the prerequisites for admission as established by the Council on Medical Education of the American Medical Association and the Cytotechnology Programs Review Committee of the American Society of Cytology.

As of September 1980, applicants should have a baccalaureate degree or a minimum of three years of academic preparation from an accredited college or university. Course work must include a minimum of 14 semester hours or 21 quarter hours of biological sciences.

All international applicants must submit TOEFL scores (Testing of English as a Foreign Language) along with their application material. Information regarding the test is available by writing to P.O. Box 899, Princeton, New Jersey, 80540, U.S.A.

Medical Laboratory Science—Cytotechnology

Certificate Program

quarter hours

This is a 12-month full-time day certificate program. A special tuition rate of \$88 per credit applies to the following courses:

87.508			Introduction to Cytotechnology	2
87.528	87.538	87.558	Cytopathology 1 2, 3	6
87.568			Cytogenetics and New Concepts	2
87.598			Special Topics	2
87.608			Seminar: Cytopathology Criteria and Correlations	2
87.518	87.548	87.578	Applied Cytology 1, 2, 3	12
87.618			Applied Cytology 4	2

Total Credits

28

Radiologic Technology

The program in Radiologic Technology is a joint offering of the University and several area hospitals. The classroom experiences are provided by the University, and the Laboratory Practicum is conducted at an assigned affiliated hospital. The Program is accredited by the Council on Medical Education of the American Medical Association.

The Radiologic Technologist is a respected member of the allied health team in the diagnostic and therapeutic environment of the clinic or hospital, and an important functionary in the production, quality control, and inspection laboratories of the industrial community. Medically related responsibilities demand effective rapport with internists, surgeons, pathologists, nurses, and laboratory personnel, while industrial competency requires close association with metallurgists, production and manufacturing specialists, engineers, and scientists.

Prerequisite: Candidates must have satisfactorily passed three years of math (Algebra 1, Algebra 2, and geometry), one year of biology, and one year of an additional science (chemistry or physics), at the high-school level. In addition, applicants must

satisfy general University requirements, and complete the University's Mathematics Placement Test satisfactorily. Candidates successfully meeting the above requirements will be scheduled for an interview with the Radiologic Technology Program Directors.

Associate Degree Program This program (28 months) is a full-time day division of University College.

All graduates are eligible to sit for examination for certification by the American Registry of Radiologic Technologists.

Part-time Associate Degree Evening Program

Candidates who wish to qualify for admission to University College for the part-time Associate Degree Program in Radiologic Technology must be certified by the American Registry of Radiologic Technologists.

Completion of the courses listed under **Part-time Evening Program** is required for the Associate in Science Degree.

Radiologic Technology (Major Code 806)

Associate in Science Degree

quarter hours

First Year

<i>Quarter 1</i>		
10.627	Mathematics 1	3
18.570	Gross Anatomy and General Physiology A	3
18.670	Anatomy & Physiology Lab A	1
30.305	English 1	3
86.420	Radiologic Technology Orientation 1	3
86.422	Radiologic Science 1	4

<i>Quarter 2</i>		
18.571	Gross Anatomy & General Physiology B	3
18.671	Anatomy & Physiology Lab B	1
30.306	English 2	3
86.424	Principles of Radiology 1	4
86.426	Radiologic Photography and Exposure 1	4
86.423	Radiologic Science 2	4

<i>Quarter 3</i>		
86.648	Radiologic Clinical Practicum 1—Full Time at Hospitals	3

<i>Quarter 4</i>		
86.649	Radiologic Clinical Practicum 2—Full Time at Hospitals	3

Second Year*Quarter 1*

10.628		Mathematics 2	3
18.411		Biology 1 with Laboratory	4
18.427		Radiologic Photography & Exposure 2	4
86.425		Principles of Radiology 2	4
86.421		Radiologic Technology Orientation 2	3

Quarter 2

86.650		Radiologic Clinical Practicum 3—Full Time at Hospitals	3
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Quarter 3

18.412		Biology 2 with Laboratory	4
19.301	19.302	Psychology 1. 2	6
30.307		English 3	3
86.434		Advanced Radiologic Technology 1**	3
86.628		Imaging Modalities**	3

Quarter 4

86.651		Radiologic Clinical Practicum 4—Full Time at Hospitals	3
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Third Year*Quarter 1*

18.413		Biology 3 with Laboratory	4
45.305		Management & Organization Intensive	6
86.435		Advanced Radiologic Technology 2**	3
86.629		Radiation Protection & Radiobiology**	3

Final Quarter Full Time at hospitals until mid-January.

Total Credits**101****Part-Time Associate Degree Evening Program*****Associate in Science Degree**

			quarter hours
10.627	10.628	Mathematics 1, 2	6
30.305	30.306	English 1, 2, 3	9
18.411	18.412	Biology 1, 2, 3	12
45.301	45.302	Management & Organization 1, 2	6
21.301	21.302	Sociology 1, 2	6
or		or	or
19.301	19.302	Psychology 1, 2	6
86.434	86.435	Advanced Radiologic Technology 1**, 2**	6
86.628		Imaging Modalities**	3
86.629		Radiation Protection and Radiobiology**	3

Total Credits**101**

*Prerequisite: Satisfactory completion of a certificate program in Radiologic Technology or registration by the American Registry of Radiologic Technologists.

**Courses will be scheduled for late afternoons for certificate students desiring to continue for the A.S. Degree.

Therapeutic Recreation Services

Prof. Frank Robinson, Consultant
Therapeutic Recreation Services
Telephone 437-3157

Ms. Jacalyn Hamada, Practicum and Independent
Study Coordinator
Telephone 437-2425

Therapeutic Recreation, which is concerned with the revitalization of the mind, spirit, and skills of people in rehabilitation facilities, community settings, nursing homes, and hospitals, has emerged as an important part of the team concept in human services.

The certificate represents the criteria set by the program's consultant for having attained a basic level of competence to contribute to this field. At present there is no official state licensing board for Therapeutic Recreation practitioners to give the certificate public standing; however, it is recognized by the Massachusetts Recreation and Park Association in their professional registration plan.

The certificate and associate degree program in University College include individual case studies, group dynamics, and motivational techniques, as well as field practicum experiences.

The associate degree program in therapeutic recreation has been designed to accommodate students who elect to pursue a B.S. degree in health management or sociology.

Curriculum

	quarter hours
I. Certification—35 quarter hours	
Required professional courses	18
Required practicum	8
Required skill electives	6
Required professional electives	6
II. Associate Degree—95 quarter hours	
Required professional courses	18
Required practicum	8
Required professional electives	24
Required core courses	45

The professional courses in the Therapeutic Recreation curriculum (63.---) are offered only at the Boston Campus with the exception of 63.330, 63.304, 63.305, 63.306, 63.323, 63.324, and 63.325.

Therapeutic Recreation Services (Major Code 601) Activity Leader Certificate Program

Required

quarter hours

30.305		English 1	3
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Professional Courses—Required

63.301	63.302	63.303	Principles and Practices of Therapeutic Recreation 1, 2, 3	9
63.304	63.305		Group Dynamics and Leadership 1, 2	6
63.310	63.311		Field Practicum in Therapeutic Recreation 1, 2*	8
or			or	or
63.315	63.316		Independent Study**	8

*See course description for practicum prerequisites. The appropriateness of being given a practicum assignment will be determined by the academic adviser.
Petitions may be obtained in 204 Churchill Hall.

**Permission is required for this option.

Skill Electives

Select 6 q.h. from the following:

63.321		Social Recreation	3
63.322		Music Therapy	3
63.323	63.324	Arts and Crafts 1, 2	6
63.326		Media Resources and Techniques	3
63.327		Therapeutic Use of Dramatics	3

Professional Electives

Select 6 q.h. from the following:

63.330		The Process of Aging	3
63.331		The Nursing Home Experience	3
63.332		Therapeutic Recreation in Rehabilitation	3
63.334		Camping for the Disabled	3
63.336		Mental Illness and Retardation	3
63.337		Therapeutic Recreation in Child Development	3
63.340		Leisure Counseling	3
63.341		Humanistic Approaches to Recreational Therapy	3
63.343		Community Recreation for the Handicapped	3

Total Credits

38

Recommended Course Sequence for Certificate Program

Beginning Courses

30.305		English 1
63.301	63.302	63.303
63.304	63.305	
		Principles and Practices of Therapeutic Recreation 1, 2, 3
		Group Dynamics 1, 2

May be taken after completing 30.305 and 63.301:

63.321	63.322	63.323	Social Recreation, Music Therapy, Arts and Crafts 1
63.324	63.326	63.327	Arts and Crafts 2, Media Resources and Techniques,
			Therapeutic Use of Dramatics
63.330	63.331	63.336	Process of Aging, Nursing Home Experience,
			Mental Illness and Retardation

Advanced Courses

63.332		Therapeutic Recreation in Rehabilitation
63.334		Camping for the Disabled
63.337		Therapeutic Recreation in Child Development
63.340		Leisure Counseling
63.341		Humanistic Approach to Recreational Therapy
63.343		Community Recreation for the Handicapped
63.310	63.311	Field Practicum 1. 2
63.315	63.316	Independent Study 1. 2

Therapeutic Recreation Services (Major Code 600)	Associate in Science Degree
	quarter hours

Required Professional Courses

63.301	63.302	63.303	Principles and Practices of Therapeutic Recreation 1. 2. 3	9
63.304	63.305		Group Dynamics and Leadership 1. 2	6
63.335			Activity and Movement Analysis	3
63.310	63.311		Field Practicum in Therapeutic Recreation 1. 2*	8
or			or	or
63.315	63.316		Independent Study**	8

*See course description for practicum prerequisites. The appropriateness of being given a practicum assignment will be determined by the academic adviser.
Petitions may be obtained in 204 Churchill Hall.

**Permission is required for this option.

Skill and Professional Electives

Select 24 quarter hours from skill electives listings and professional electives listings in certificate program.	24
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Required Core Courses

19.301	19.302	19.303	Psychology 1. 2. 3	9
18.411	18.412		Biology 1. 2	8
18.424	18.425	18.426	Anatomy & Physiology 1. 2. 3	9
21.363			Social Gerontology	3
30.305	30.306	30.307	English 1. 2. 3	9
86.300			Medical Terminology Survey	3
86.303	86.304		Foundations of Medical Science 1. 2	6

Total Credits	97
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Recommended Course Sequence for Associate in Science Degree

Beginning Courses

18.411	18.412		Biology 1, 2
30.305	30.306	30.307	English 1, 2, 3
63.301	63.302	63.303	Principles and Practices of Therapeutic Recreation 1, 2, 3
63.304	63.305		Group Dynamics 1, 2
May be taken after completing 30.305 and 63.301:			
63.321	63.322		Social Recreation, Music Therapy
63.323	63.324	63.325	Arts and Crafts 1, 2; Intensive Media Resources and Techniques, Therapeutic Use of Dramatics
63.326	63.327		Process of Aging, Nursing Home Experience, Mental Illness and Retardation
63.330	63.331	63.336	

Advanced Courses

18.424	18.425	18.426	Anatomy & Physiology 1, 2, 3
19.301	19.302	19.303	Psychology 1, 2, 3
21.363			Social Gerontology
63.310	63.311		Field Practicum 1, 2
63.315	63.316		Independent Study 1, 2
63.332			Therapeutic Recreation in Rehabilitation
63.334			Camping for the Disabled
63.337			Therapeutic Recreation in Child Development
63.340			Leisure Counseling
63.341			Humanistic Approach to Recreational Therapy
63.343			Community Recreation for the Handicapped

May be taken after completing 18.424:

63.335		Activity and Movement Analysis
86.300		Medical Terminology Survey
86.303	86.304	Foundations of Medical Science 1, 2

Education

Education Courses

University College offers a group of undergraduate education courses designed to aid in obtaining teacher certification in the State of Massachusetts. (Because of the variety of teaching majors, each student is cautioned to contact the Bureau of Certification of the State Board of Education to ascertain the specific requirements for certification in a particular teaching discipline.)

The University College program of six courses carrying a total of 23 quarter hours of credit includes the following courses:

	quarter hours
51.303 Introduction to Education	3
51.304 The Instructional Process	3
51.305 Curriculum Development	3
51.306 Methods and Materials 1	3
51.307 Humanities Methods and Materials 2*	3
51.308 Social Studies Methods and Materials 2* 3	
51.309 Student Teaching and Seminar	8

* Students should choose either 51.307 or 51.308 depending on their major and their certification desires.

All the above courses may be used as electives toward a degree in University College. Course descriptions are found on page 177.

Prerequisites for Student Teaching

Entry into 51.309 has the following prerequisites:

1. Completion of 130 quarter hours toward a bachelor's degree in economics, English, history, music, political science, psychology, sociology-anthropology, or science. Students with majors in economics, psychology, or sociology-anthropology, intending to apply for certification in social studies, should complete a minimum of 24 quarter hours in history and/or political science.
2. Completion of 40 quarter hours in a teaching major (social studies, English, music, science).
3. An average Q.P.A. of at least 2.0 in a teaching major.
4. An overall average of at least 2.0.
5. Completion of a 3-quarter-hour course in adolescent development or 19.311 (Developmental Psychology 1).
6. Completion of the following courses: 51.303, 51.304, 51.305, 51.306, and 51.307 or 51.308. (Students are urged to complete 51.306 and 51.307 or 51.308 shortly before student teaching, 51.309).

Students are referred to the Chairman, Dept. of Curriculum and Instruction (Boston-Bouvé College of Human Development Professions) for advice on this program.

Course Descriptions

Not all the courses listed in this bulletin will be offered. A final list of courses to be offered will be contained in the University College Schedule of Courses, which gives the hours, days, and location of classes. This schedule is issued prior to the fall, winter, spring, and summer quarters.

Abbreviations

q.h.: quarter hours (credit earned)

cl.: hours required in class per week

Prereq.: Prerequisite

Note for Mathematics and Physics courses offered by Lincoln College: Tuition for all courses in Lincoln College is at the rate of \$65.00 per quarter hour of credit.

10: Mathematics (Lincoln College)

Students enrolling in 10.627, Mathematics 1, will be given a placement test during the first class meeting. An unsatisfactory score on this test, indicating inadequate preparation for Mathematics 1, will require that the student enroll in 10.671 for additional preparation.

Students intending to enroll in 10.607, College Algebra, will be given a placement test during registration. An unsatisfactory score on this test will require the student to enroll in 10.681 or 10.682 for additional preparation.

10.681 Introduction to Mathematics 1 (4 cl / 4 q.h.)

This credit cannot be used in the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree programs. A comprehensive review of high school algebra, including: first-degree equations, factoring, fractions, fractional equations, ratio and proportion word problems, and concepts of plane geometry.

10.682 Introduction to Mathematics 2 (4 cl / 4 q.h.)

This credit cannot be used in the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree programs. Algebraic operations with complex fractions, mixed expressions, square roots, radicals, quadratic equations, simultaneous equations, graphs, and fractional zero and negative exponents, the geometry of the right triangle, areas of polygons and circles, and loci problems. *Prereq.* 10.681

10.683 Applied Mathematics and Statistics (3 q.h.)

The use of mathematics as a guide to concise thinking, the application of mathematical methods to highlight sig-

nificant data. The use of elementary analytical models to test and evaluate hypotheses. An examination of the role of chance in physical phenomena. The importance of the use of a relevant statistical model. Methods for the selection of a data base.

10.607 College Algebra (4 cl / 4 q.h.)

Fundamental algebraic operations, complex numbers, radicals and exponents, functions, linear and quadratic equations, irrational equations, inequalities, variations, roots of polynomial equations. *Prereq.* Math Placement Test or 10.682

10.608 Introduction to Calculus (4 cl / 4 q.h.)

Logarithms, trigonometric functions of angles in degrees and radians, trigonometric identities and equations, right triangles, oblique triangles, complex numbers, trigonometric form, systems of equations, determinants. *Prereq.* 10.607

10.620 Calculus 1 (4 cl / 4 q.h.)

Plane analytic geometry, Differentiation of algebraic functions, Rate motion, maximum and minimum problems, Derivatives of higher order, Curve sketching, Basics in functions, limits and continuity. *Prereq.* 10.608

10.621 Calculus A (4 cl / 4 q.h.)

Introduction to analytical geometry, maximum and minimum, critical points, mean value theorem, applications of the derivative, integration, applications of integration, differentiation and integration of logarithmic, exponential, trigonometric and inverse trigonometric functions, integration by parts and by partial fractions. *Prereq.* 10.620

10.627 Mathematics 1 (3 q.h.)

Sets, number systems, methods and applications of algebra, fundamental operations, special products, factoring, operations with fractions, exponents, and radicals. A placement test will be given during the first class meeting. An unsatisfactory score on this test will require that the student enroll in 10.671 for additional preparation.

10.628 Mathematics 2 (3 q.h.)

Linear, fractional, and quadratic equations, functions, relations, and graphs, systems of equations and inequalities, matrices and determinants. *Prereq.* 10.627

10.629 Mathematics 3 (3 q.h.)

Ratio, proportion, and variation, logarithms, progressions, mathematical induction, the binomial theorem, permutations and combinations, probability. *Prereq.* 10.628

10.316 Probability and Statistics 1 (2 cl / 2 q.h.)

Basic tools, e.g. sets, permutations and combinations, probability and applications. *Prereq.* 10.608, 10.629 or 10.634

10.317 Probability and Statistics 2 (2 cl., 2 q.h.)

Descriptive statistics, frequency distributions and probability density functions, normal and other distributions. *Prereq* 10.316.

10.318 Probability and Statistics 3 (2 cl., 2 q.h.)

Bivariate distributions, correlation, statistical inference, and estimation regression. *Prereq* 10.317.

10.671 Basic Mathematics 1 (2 cl., 2 q.h.)

This credit cannot be used in the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree programs. A review of elementary algebra, algebraic expressions and operations, equations, word problems.

10.672 Basic Mathematics 2 (2 cl., 2 q.h.)

This credit cannot be used in the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree programs. Further review, operations with polynomials, factoring, fractional expressions, word problems. *Prereq* 10.671.

10.632 Mathematics for Business Management 1 (3 q.h.)

Topics in mathematics generally applicable to business management. Logic, set theory, probability for decisions under uncertainty, survey of mathematical models, linear models. *Prereq* 10.629 or equiv.

10.633 Mathematics for Business Management 2 (3 q.h.)

Business applications of statistics, mathematics of finance, linear programming, matrix algebra and applications. *Prereq* 10.632.

10.634 Mathematics for Business Management 3 (3 q.h.)

Directed graph models, markov chains, theory of games, utility theory, statistical decision theory. *Prereq* 10.633.

11: Physics (Lincoln College)**11.604 General Physics 1** (2 cl., 2 q.h.)

Survey of Newtonian mechanics; kinematics and dynamics of particle motion, projectile and circular motion, rotational motion, conservation laws of energy and momentum. *Prereq* 10.627 or concurrently.

11.605 General Physics 2 (2 cl., 2 q.h.)

Temperature, heat energy, mechanical equivalent of heat, wave motion; sound, Doppler's effect; properties of light, simple optical systems. *Prereq* 11.604.

11.606 General Physics 3 (2 cl., 2 q.h.)

Fundamentals of electricity and magnetism: fields, potential, electric current, inductance, capacitance, electromagnetism, a-c and d-c series circuits. *Prereq* 11.605.

11.681 Introductory Physics 1 (4 cl., 4 q.h.)

This credit cannot be used in the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree programs. An introduction to mechanics,

units of measurement, vectors, accelerated motion, and Newton's laws of motion.

11.682 Introductory Physics 2 (4 cl., 4 q.h.)

This credit cannot be used in the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree programs. Continuation of mechanics: conservation of energy and momentum. Introduction to elements of heat, thermodynamics, light, and electromagnetism. *Prereq* 11.381.

12: Chemistry

Consultant: Prof. P. Lequesne, Chairman, Chemistry Dept. (College of Arts and Sciences)

12.407 Modern Chemistry 1 (Introduction to Inorganic Chemistry) (2 cl., 2.4 lab, 3 q.h.)

Fundamental ideas of matter and energy, chemical bonding, chemical energy, water and solutions, colloids, ionic reactions, oxidation and reduction, acidity, radioactivity, air and water pollution. Topics will usually be discussed from the viewpoint of recent developments. The laboratory deals with experiments related to the lecture material. *The required laboratory for this course is designated 12.607, Lab for 12.407, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.407.* (Laboratory fee)

12.408 Modern Chemistry 2 (Introduction to Organic Chemistry) (2 cl., 2.4 lab, 3 q.h.)

Classes of organic compounds, including hydrocarbons, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, amides, and carbohydrates, including their relationship with modern biology. The laboratory deals with experiments related to the lecture material. *The required laboratory for this course is designated 12.608, Lab for 12.408, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.408.* *Prereq* 12.407 or equiv. (Laboratory fee)

12.409 Modern Chemistry 3 (Introduction to the Chemistry of Living Bodies) (2 cl., 2.4 lab, 3 q.h.)

Includes fats, proteins, enzymes, chemistry of digestion, and the chemical reactions of body fluids. The laboratory deals with experiments related to the lecture material. *The required laboratory for this course is designated 12.609, Lab for 12.409, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.409.* *Prereq* 12.408 or equiv. (Laboratory fee)

12.415 Biochemistry 1 (3 cl., 3 q.h.)

The first quarter of a three-quarter sequence. Introduction to the biochemistry of the cell, including the occurrence, chemistry, and metabolism of carbohydrates, lipids, proteins, and nucleic acids. *Prereq* 12.433 or equiv.

12.416 Biochemistry 2 (3 cl., 3 q.h.)

Continuation of Biochemistry 1. *Prereq* 12.415 or equiv.

12.417 Biochemistry 3 (3 cl., 3 q.h.)

Continuation of Biochemistry 2. *Prereq* 12.416 or equiv.

12.421 Analytical Chemistry 1 (2 cl., 2.4 lab, 3 q.h.)

Analytical procedures and techniques. Principles and practice of gravimetric methods of analysis. Laboratory work usually involves procedures and techniques of gravimetric analysis. *The required laboratory for this course is designated 12 621, Lab for 12.421, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.421. Prereq. 12.446 or equiv (Laboratory fee)*

12.422 Analytical Chemistry 2 (2 cl., 2.4 lab, 3 q.h.)

Principles and practice of titrimetric methods of analysis. The laboratory work usually involves the procedures and techniques of volumetric analysis. *The required laboratory for this course is designated 12 622, Lab for 12.422, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.422. Prereq. 12.421 or equiv. (Laboratory fee)*

12.423 Analytical Chemistry 3 (2 cl., 2.4 lab, 3 q.h.)

Theories of spectrophotometry, chromatography, and selected electroanalytical methods. The laboratory usually involves instruments and procedures for electrometric and optical methods of chemical analysis. *The required laboratory for the course is designated 12 623, Lab for 12.423, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.423. Prereq. 12.422 or equiv. (Laboratory fee)*

12.427 Analytical Chemistry (Lectures and laboratory, 4 q.h., summer quarter only.)

Survey of principles and theories of volumetric, gravimetric, and instrumental analysis. Application made in the laboratory with analyses of unknown samples. *The required laboratory for this course is designated 12 627, Lab for 12.427, and generally meets on a different night. You must register also for this laboratory to receive credit for 12.427. Prereq. General Chemistry or equiv. (Laboratory fee)*

12.431 Organic Chemistry 1 (2 cl., 4 lab and disc., 4 q.h.)

Nature of carbon in organic compounds. General principles of structure, nomenclature, preparation, uses, and reactions of aliphatic hydrocarbons: alkanes, alkenes, alkynes, dienes, cycloalkanes. Position and geometric isomerism. Introduction to free radical and ionic mechanisms of reactions. The laboratory generally deals with the preparation and properties of compounds discussed in lecture. *The required laboratory and discussion for this course is designated 12 631, Lab for 12.431, and generally meets on a different night. You must register also for this laboratory and discussion to receive credit for 12.431. Prereq. 12.446 or equiv. (Laboratory fee)*

12.432 Organic Chemistry 2 (2 cl., 4 lab and disc., 4 q.h.)

Structure of benzene, electrophilic aromatic substitution reactions. General principles of structure, nomenclature, preparation, uses, and reactions of the various types of organic compounds, including: alcohols, alkyl and aryl

halides, ethers and epoxides, and carboxylic acids. Optical isomerism and introductory chemical kinetics will be discussed. The laboratory generally deals with the preparation and properties of compounds discussed. *The required laboratory and discussion for this course is designated 12 632, Lab for 12.432, and generally meets on a different night. You must register also for this laboratory and discussion to receive credit for 12.432. Prereq. 12 431 or equiv (Laboratory fee)*

12.433 Organic Chemistry 3 (2 cl., 4 lab and disc., 4 q.h.)

Continuation of 12.432 with emphasis on the application of chemical conversions to synthetic problems. Functional derivatives of carboxylic acids, sulfonic acids and their derivatives, amines, diazonium compounds, phenols, aldehydes, and ketones. The laboratory generally deals with the preparation and properties of compounds discussed. *The required laboratory and discussion for this course is designated 12 633, Lab for 12.433, and generally meets on a different night. You must register also for this laboratory and discussion to receive credit for 12.433. Prereq. 12.432 or equiv (Laboratory fee)*

12.441 Physical Chemistry 1 (3 cl., 3 q.h.)

Thermodynamics, thermochemistry, First and Second Laws, entropy and free energy in spontaneous processes. *Prereq. 10.323, 11 306, and 12.446 or equiv.*

12.442 Physical Chemistry 2 (3 cl., 3 q.h.)

Chemical equilibria, acids and bases, electrochemistry, colligative properties, phase diagrams, thermodynamics of multicomponent systems. Kinetic molecular theory. *Prereq. 12.441 or equiv*

12.443 Physical Chemistry 3 (3 cl., 3 q.h.)

Kinetics, quantum chemistry, photochemistry *Prereq. 12.442 or equiv*

12.444 General Chemistry 1 (2 cl., 2.4 lab, 3 q.h.)

Fundamental concepts: symbols, formulas, equations, atomic weights, and calculations based on equations. Gases, liquids, solutions, and ionization. The laboratory generally deals with experiments related to the lectures. *The required laboratory for this course is designated 12 644, Lab for 12.444, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.444. Prereq. 10.529 or equiv (or taken concurrently). (Not open to those students with credit for 12.311 or 12.314.) (Laboratory fee)*

12.445 General Chemistry 2 (2 cl., 2.4 lab, 3 q.h.)

Atomic structure, bonding, and molecular structure. Oxidation and reduction reactions, equilibrium and kinetics. The laboratory generally deals with experiments related to the lectures. *The required laboratory for this course is designated 12 645, Lab for 12.445, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.445. Prereq. 12.444 or equiv. (Not open to those students with credit for 12.312 or 12.315.) (Laboratory fee)*

12.446 General Chemistry 3 (2 cl., 2.4 lab, 3 q.h.)

Thermochemistry and electrochemistry. Acids, bases, and solubility product. Nuclear chemistry. Introductory organic chemistry and biochemistry. The laboratory usually deals with experiments related to the lectures. *The required laboratory for this course is designated 12.646. Lab for 12.446, and generally meets on the same night. You must register also for this laboratory to receive credit for 12.446. Prereq. 12.445 or equiv. (Not open to those students with credit for 12.313 or 12.316.)* (Laboratory fee)

12.450 Chemistry and the Environment (3 cl., 3 q.h.)

This course is designed to acquaint the nonscience students with the chemical aspects of the environment. Topics discussed generally include: air and water pollution, nuclear fallout, radiation damage, the effects of pesticides, aerosols, food additives, etc., and their relationship to public health. The necessary foundation of chemical principles will be presented.

12.451 Instrumental Analysis 1 (formerly Instrumental and Radiochemistry 1) (3 cl., 3 q.h.)

Basic theory and instruments used in electrochemical analysis. Course generally includes such topics as electrode and cell potentials, potentiometric titrations, direct potentiometry (pH meters and specific ion electrodes), coulometry, polarography, amperometry, electrogravimetry, and conductivity. *Prereq. 12.423 or equiv.* (This course and 12.452 can serve as preparation for certain graduate courses.)

12.452 Instrumental Analysis 2 (formerly Instrumental and Radiochemistry 2) (3 cl., 3 q.h.)

Basic theory and instruments used in spectrochemical analysis. Course generally includes such topics as electromagnetic spectrum, ultraviolet and visible spectrophotometry, infrared spectrophotometry, X-ray analysis, fluorescence and phosphorescence, emission spectrophotometry, absorption spectrophotometry, and chromatography. *Prereq. 12.451 or equiv.* (This course and 12.451 can serve as preparation for certain graduate courses.)

12.453 Radiochemistry (formerly Instrumental and Radiochemistry 3) (3 cl., 3 q.h.)

Radioactivity and nuclear reactions; production and study of nuclear reactions; equations of radioactive decay, nuclear states and radioactive processes; interaction of radiation with matter; radiation detection and measurement, statistics of radioactivity measurements; techniques for the study of radionuclides, tracers in chemical applications; and nuclear energy. *Prereq. 12.452 or equiv.*

12.454 Introduction to Polymer Chemistry (3 cl., 3 q.h.)

Natural, modified and synthetic polymers. Plastics, fibers and rubbers. Condensation polymerization. Addition polymerization in bulk, solution and emulsion. Kinetics. Molecular weight, physical properties, uses. *Prereq. 10.320, 12.433 or equiv.*

12.460 Chemistry Workshop (3 cl. 0 q.h.)

A discussion and problem-solving session that will help reinforce and reexamine the material covered in 12.444,

12.445, and 12.446. Content is programmed according to needs of the students, and the classes are small and informal.

16: Earth Science

Consultant. Prof. D. Wilmarth, Earth Sciences (College of Arts and Sciences)

16.301 Earth Sciences 1 (3 q.h.)

The fundamental components of the solid Earth and their modes of organization. The structure of the solid Earth, its mode of forming its crustal exterior. The role of the oceans in building and shaping the continental masses.

16.302 Earth Sciences 2 (3 q.h.)

The gaseous components of the fluid Earth. Their organization into masses, systems, and mass interaction. The long-range consequences of the fluid Earth's effects upon the solid Earth in the reshaping of landforms and the production of new land masses.

16.303 Earth Sciences 3 (3 q.h.)

A study of the Earth as an object in space. The history of the Earth as identified in the solid materials of the Earth. The implications of the Earth's history for the other members of the solar system. The solar system as a model for the universe.

16.304 Earth Sciences (Intensive) (9 q.h.)

A composite of 16.301, 16.302, and 16.303, as a one-quarter course.

16.311 History of Ancient World Sciences and Technologies (3 q.h.)

An in-depth study of selected sciences and technologies characterizing the ancient world. Classes are a combination of lecture-discussion, seminars based upon independent research, and extensive outside reading.

16.312 History of Modern World Sciences and Technologies (3 q.h.)

A continuation of 16.311, beginning with the period of the Western World Renaissance. Continues to the present with the implications of contemporary sciences and technologies for the immediate future.

16.324 Principles of Geology 1 (3 q.h.)

A detailed analysis of the crustal components of the Earth, their modes of formation, and the forces involved in their shaping. The relation of these factors to the structure and processes of the Earth's interior.

16.325 Principles of Geology 2 (3 q.h.)

The forces and processes involved in the alteration, transportation, and deposition of crustal materials; their effect on the Earth's landforms. The interactions of the oceans with the land masses. *(Not open to students who have credit for 16.521.)*

16.326 Principles of Geology 3 (3 q.h.)

A detailed study of the sedimentary and radio-chemical deposits of the Earth. Their relevant contributions to understanding the history of the Earth.

16.327 Descriptive Mineralogy (3 q.h.)

The significance of atomic structure to the crystalline forms of mineral materials. The forces and factors that are responsible for the formations of minerals in the rock materials of the Earth's crust.

16.328 Igneous and Metamorphic Petrology (3 q.h.)

The details of volcanic factors that produce igneous rock types. The internal and external crustal forces and motions that re-form all previously existing rock types.

16.329 Sedimentary Petrology (3 q.h.)

The processes and forces that provide the materials for sedimentary rock forms. The rock types that evolve with time and their stratigraphic significance.

16.331 Principles of Oceanology 1 (3 q.h.)

In-depth study of the origin of the global ocean; the physical and chemical properties of sea water; development of ocean currents and their effect on land masses of the world; problems of ocean pollution.

16.332 Principles of Oceanology 2 (3 q.h.)

The habitat zones and organisms of the sea. Economic importance of marine resources for expanding world population.

16.333 Principles of Oceanology 3 (3 q.h.)

Physiography and structure of ocean basins; marine geological processes and features; sedimentation, erosion, shorelines, and bottom topography; methods and techniques of marine geological explorations.

16.334 Fisheries Oceanology 1 (3 q.h.)

Survey of commercially important marine organisms; life and distribution of commercially important seaweed, shellfish, and fishes; population dynamics and fishery potential of the world's oceans; analysis of fishery stocks and sea farming.

16.335 Fisheries Oceanology 2 (3 q.h.)

Examination of fishery methods and techniques around the world; recent technological advancement. Commercial products and applications of marine organisms; special emphasis on marine products of commerce from the New England area. Chemical, industrial, and dietary applications of marine products.

16.336 Marine Resources (3 q.h.)

Quantitative and qualitative consideration of energy from the marine environment: current technological developments in the use of tidal power, off-shore oil, natural gas, thermal and nuclear energy from the sea. Food resources of the sea; analysis of world marine food production; marine food technology, conservation, and mariculture. Coastal zone recreational resources: beaches, artificial fishing reefs; shore erosion; SCUBA, boating, sailing, angling, and surfing.

16.341 Principles of Meteorology 1 (3 q.h.)

An in-depth study of the composition and structure of the atmosphere. The issue of the solar energy input and the physical consequences for the dynamics of the atmosphere.

16.342 Principles of Meteorology 2 (3 q.h.)

The formation and behavior of air masses. Consideration of the interactions of air masses, the formation of fronts and storms.

16.343 Principles of Meteorology 3 (3 q.h.)

The practices and procedures of weather reporting and forecasting. The formulation of weather maps. The historical weather record and its value for the studies of world climatology.

16.351 Principles of Astronomy 1 (3 q.h.)

The nature and scope of astronomy; the geocentric universe; the heliocentric universe; celestial reference systems; time and the calendar; the sun-moon-earth system; astronomical instruments.

16.352 Principles of Astronomy 2 (3 q.h.)

The solar system; the inner planets; the outer minor planets; the outer major planets; the telescopic planets; the asteroid belt; meteors; comets; the sun as a source of energy and center of organization.

16.353 Principles of Astronomy 3 (3 q.h.)

The triangulation of space; stellar population; star color and motion; star systems; stellar evolution; galaxies.

16.354 Observational Astronomy (3 q.h.)

An introduction to the planets, stars, and constellations that are visible to the naked eye. Lectures, the planetarium, and actual viewing sessions are all used during the course. Primary emphasis will be placed on those stars and constellations easily seen from mid-northern latitudes.

16.355 Solar System Astronomy (3 q.h.)

A detailed examination of the individual components of the solar system. Contemporary results from the space probes are used to reassess our understandings of the origin and development of the solar system.

16.356 Celestial Astronomy 1 (3 q.h.)

An examination of the sun as a model star. Variations of characteristics in single stars, star systems, stellar populations. The H-R diagram and stellar evolution. The significance of radio astronomy for stellar structure and stellar evolution.

16.357 Celestial Astronomy 2 (3 q.h.)

The structure and organization of the Milky Way galaxy. The nature of inter-stellar and inter-galactic space, quasars, pulsars, black holes; cosmology.

16.371 Principles of Conservation 1 (3 q.h.)

Philosophy of conservation; historical development of the conservation movement in the U.S. since 1900; interactions of economics and conservation practices.

16.372 Principles of Conservation 2 (3 q.h.)

Problems relating to the supply, use, and management of major renewable natural resources: forests, soil, wildlife, and water.

16.373 Principles of Conservation 3 (3 q.h.)

Application of the theories and techniques of conservation; problems of urban resources; air and water pollution; recreational resources; the availability of funds.

16.374 Conservation and the Nation (3 q.h.)

In-depth study of the current practices and problems in our nation; mineral resources availability and allocation; energy resources; atmospheric, fresh and salt water pollution; wildlife and endangered species.

16.375 Conservation and the Community (3 q.h.)

Examination of the conservation problems at the local level; identification of the problem; the factors involved; the dimension of the problem; the responsibility of the community.

16.376 Conservation Management (3 q.h.)

Assessment of current practices of the local community; sources of knowledge and assistance among the populace; agencies available to the community; nature and scope of practices needed; practicality of community action.

18: Biology

Consultant: Prof. F. A. Rosenberg (College of Arts and Sciences)

18.407 Gross Anatomy and General Physiology 1 (3 cl., 3 q.h.)

Fundamental concepts of living organisms; chemical and biological characteristics of cellular metabolism. The skeletal system and its appendages. General nomenclature, anatomical names and terms.

18.408 Gross Anatomy and General Physiology 2 (3 cl., 3 q.h.)

The systems of the body and the relationships between them. The structure and function of each. *Prereq.* 18.407 or *equiv.*

18.409 Gross Anatomy and General Physiology 3 (3 cl., 3 q.h.)

Continuation of 18.408. *Prereq.* 18.408 or *equiv.*

18.411 Biology 1 (General) (3 cl., 3 lab., 4 q.h.)

Universal properties and processes of living organisms; cellular composition and cellular activities; inheritance and cellular control. *The required laboratory for this course is designated 18.611, Lab for 18.411, and generally meets on a different night. You must register also for this laboratory to receive credit for 18.411. (Laboratory fee)*

18.412 Biology 2 (Animal) (3 cl., 3 lab., 4 q.h.)

Functional anatomy of animal organ systems, their interactions and environmental relationships. *The required laboratory for this course is designated 18.612, Lab for 18.412, and generally meets on a different night. You must register also for this laboratory to receive credit for 18.412. Prereq.* 18.411 or *equiv. (Laboratory fee)*

18.413 Biology 3 (Animal) (3 cl., 3 lab., 4 q.h.)

Systematic comparative study of the structure and functions of animals. Diversity of animals considered from the standpoint of evolutionary adaptation. *The required laboratory for this course is designated 18.613, Lab for 18.413, and generally meets on a different night. You must*

register also for this laboratory to receive credit for 18.413. Prereq. 18.412 or *equiv. (Laboratory fee)*

18.419 Plant Biology (3 cl., 3 lab., 4 q.h.)

Systematic study of the structure and function of plants, principally vascular plants. Survey of the plant-like protists and monerans. *The required laboratory for this course is designated 18.619, Lab for 18.419, and generally meets on a different night. You must register also for this laboratory to receive credit for 18.419. Prereq.* 18.411 or *equiv. (Laboratory fee)*

18.420 Medical Microbiology (2 cl., 4 lab., 4 q.h.)

Major characteristics of disease-producing organisms. *The required laboratory for this course is designated 18.620, Lab for 18.420, and generally meets on a different day. You must register also for this laboratory to receive credit for 18.420. Prereq.* A formal course or professional laboratory experience in bacteriology. *(Laboratory fee)*

18.421 Microbiology 1 (2 cl., 3 lab., 3 q.h.)

Morphology and biochemistry of the bacteria. *The required laboratory for this course is designated 18.621, Lab for 18.421, and generally meets on a different night. You must register also for this laboratory to receive credit for 18.421. Prereq.* 18.413 or *equiv. (Laboratory fee)*

18.422 Microbiology 2 (2 cl., 3 lab., 3 q.h.)

Survey of pathogenic microorganisms. *The required laboratory for this course is designated 18.622, Lab for 18.422, and generally meets on a different night. You must register also for this laboratory to receive credit for 18.422. Prereq.* 18.421 or *equiv. (Laboratory fee)*

18.423 Microbiology 3 (2 cl., 3 lab., 3 q.h.)

Characteristics and role of microorganisms in the environment. *The required laboratory for this course is designated 18.623, Lab for 18.423, and generally meets on a different night. You must register also for this laboratory to receive credit for 18.423. Prereq.* 18.422 or *equiv. (Laboratory fee)*

18.424 Human Anatomy and Physiology 1 (2 cl., 2 lab., 3 q.h.)

Introduction to human anatomy; osteology; anatomy of the muscular system, respiratory system, digestive system, the vascular system, urogenital system. The laboratory generally includes a study of human bone and cat dissection. *The required laboratory for this course is designated 18.624, Lab for 18.424, and generally meets on the same night. You must register also for this laboratory to receive credit for 18.424. Prereq.* 18.413 or *equiv. (Laboratory fee)*

18.425 Human Anatomy and Physiology 2 (2 cl., 2 lab., 3 q.h.)

Principles of physiology and continuation of the study of human anatomy. The laboratory is mainly concerned with muscle physiology. *The required laboratory for this course is designated 18.625, Lab for 18.425, and generally meets on the same night. You must register also for this laboratory to receive credit for 18.425. Prereq.* 18.424 or *equiv. (Laboratory fee)*

18.426 Human Anatomy and Physiology 3 (2 cl., 2 lab., 3 q.h.)

Continuation of the principles of physiology. The anatomy and physiology of the nervous system, physiology of the endocrine system. The laboratory generally deals with the physiology of respiration and the physiology of blood. *The required laboratory for this course is designated 18.626, Lab for 18.426, and generally meets on the same night. You must register also for this laboratory to receive credit for 18.426. Prereq. 18.425 or equiv. (Laboratory fee)*

18.430 Horticulture (3 q.h.)

The study of the science and art of plants, stressing the use of plants in the home and community. *The required laboratory for this course is designated 18.630, Lab for 18.430, and generally meets on the same day. You must register for this laboratory to receive credit for 18.430. (Laboratory fee)*

18.431 Cell Biology 1 (3 cl., 3 q.h.)

Chemical composition of cells, structure of cells and organelles, transport processes, cell motion and excitability, growth. *Prereq. 18.413, 18.458, and 12.433 or equiv.*

18.432 Cell Biology 2 (3 cl., 3 q.h.)

Cellular energy supply, enzyme function, respiration and metabolism, photosynthesis and other synthetic pathways, control of cellular process. *Prereq. 18.431 or equiv.*

18.433 Cell Biology Laboratory (4 lab., 2 q.h.)

Laboratory techniques in cell biology; microscopy; structure and chemical composition of cells; enzyme measurements; photosynthesis; respiration; active transport; growth. *Each class session lasts longer than in 18.431 or 18.432. Prereq. 18.432 or equiv. (Laboratory fee)*

18.435 Advanced Horticulture (3 q.h.)

The advanced study of the art and science of using plants for home and community. Special emphasis will be accorded various philosophies involving plants and man. *The required laboratory for this course is designated 18.635, Lab for 18.435, and generally meets on the same day. You must register for this laboratory to receive credit for 18.435. Prereq. 18.430. (Laboratory fee)*

18.438 Immunology (2 cl., 4 lab., 4 q.h.)

Biological, chemical, and physical attributes of antigens and antibodies, together with their serological interactions. *The required laboratory for this course is designated 18.638, Lab for 18.438, and generally meets on a different day. You must register also for this laboratory to receive credit for 18.438. Prereq. 18.423, 12.433 or equiv. (Laboratory fee)*

18.451 Histology-Organology 1 (1 cl., 2 lab., 2 q.h.)

The morphology of cells and tissues. *The required laboratory for this course is designated 18.651, Lab for 18.451, and generally meets on the same night. You must register also for this laboratory to receive credit for 18.451. Prereq. 18.413 or equiv. (Laboratory fee)*

18.452 Histology-Organology 2 (1 cl., 2 lab., 2 q.h.)

The tissue components of the integumentary, digestive, and respiratory systems. *The required laboratory for this*

course is designated 18.652, Lab for 18.452, and generally meets on the same night. You must register also for this laboratory to receive credit for 18.452. Prereq. 18.451 or equiv. (Laboratory fee)

18.453 Histology-Organology 3 (1 cl., 2 lab., 2 q.h.)

The tissue components of the cardiovascular, excretory, reproductive, and endocrine systems. *The required laboratory for this course is designated 18.653, Lab for 18.453, and generally meets on the same night. You must register also for this laboratory to receive credit for 18.453. Prereq. 18.452 or equiv. (Laboratory fee)*

18.457 Genetics 1 (3 cl., 3 q.h.)

Mitosis, meiosis, and mendelian genetics. *Prereq. 18.413, 12.446 or equiv.; 10.308, 10.529 or equiv.*

18.458 Genetics 2 (3 cl., 3 q.h.)

Chromosome mapping, mutations, translocation, chromosomal aberrations. *Prereq. 18.457 or equiv.*

18.459 Genetics Laboratory (4 lab., 2 q.h.)

Laboratory exercises involving principles of Mendelian inheritance, linkage, crossing-over. Classical genetics utilizing *Drosophila*; biochemical studies utilizing *Neurospora*. *Each class session lasts longer than in 18.457 or 18.458. Prereq. 18.458 or equiv. (Laboratory fee)*

18.461 Ecology 1 (3 cl., 3 q.h.)

Environmental factors. The soil system. Water. The atmosphere. Temperature, light, wind, pressure. The physico-chemical factors—CO₂, N and mineral nutrients. Habitat. Distribution of plants and animals in the world according to temperature and precipitation. *Prereq. 18.413 or equiv.*

18.462 Ecology 2 (3 cl., 3 q.h.)

The ecosystem. Ecological niche. The producers, consumers, and decomposers. The pond ecosystem, desert ecosystem, forest ecosystem, and seashore ecosystem. Energy cycle and efficiency of energy utilization. Mass, weight, and energy pyramids. *Prereq. 18.461 or equiv.*

18.463 Ecology 3 (3 cl., 3 q.h.)

Population ecology. Biotic community. Population growth. Relations between the species. Symbiosis. Competition. Predation. Succession. *Prereq. 18.462 or equiv.*

18.464 Man and His Biosphere 1 (3 cl., 3 q.h.)

An ecological analysis of the human situation and man's interaction with other organisms. The necessary foundation of biological principles will be presented.

18.465 Man and His Biosphere 2 (3 cl., 3 q.h.)

A continuation of 18.464. *Prereq. 18.464 or equiv.*

18.474 Advanced Human Physiology (3 q.h.)

Study of human physiology emphasizing the cellular processes underlying organ functions and the interactions and control of organ systems. Selected physiological topics will be considered from these viewpoints as time allows. Reading to supplement material covered in lecture will be required. *Prereq. 18.426 and 12.446 or equiv.*

18.475 Advanced Human Physiology 2 (3 q.h.)

Continuation of 18.474. *Prereq.* 18.474.

18.601 Botany for Horticulture 1 (2 cl., 3 lab., 3 q.h.)

Designed to acquaint the gardener or horticulturist with the botanical principles behind good horticultural practice. Topics: basic anatomical and cellular structure of higher plants and basic growth functions of cell division, development, reproduction, respiration, and photosynthesis. Horticultural plants will be used as examples. (Laboratory fee)

18.602 Botany for Horticulture 2 (2 cl., 3 lab., 3 q.h.)

A sequel to Botany for Horticulture 1, 18.601, covers more detailed physiological and anatomical aspects of plant structure, growth, and development. Included will be structural/functional stages of the plant life cycle: germinant hormones, tropisms, mineral and water uptake, light responses, and flower and seed production. *Prereq.* 18.601 or equiv. (Laboratory fee)

18.606 Greenhouse Propagation and Germination (2 cl., 3 lab., 3 q.h.)

Survey of vegetative propagation techniques, and germination of herbaceous plant seeds. Greenhouse lab work will include practice with various forms of division, layering and spore propagation, and study of underlying botanical activities. *Prereq.* 18.601 or equiv. (Laboratory fee)

19: Psychology

Consultant: Prof. Charles Karis, Psychology Dept. (College of Arts and Sciences)

Associate Consultant: Prof. Harold Zamansky, Psychology Dept. (College of Arts and Sciences)

19.301 Psychology 1 (3 q.h.)

An introductory survey of the historical backgrounds of psychology, psychological measurement and testing, and principles of animal and human learning.

19.302 Psychology 2 (3 q.h.)

Principles of sensory processing, perception, motivation and emotion, and social influences on behavior. *Prereq.* 19.301 or equiv.

19.303 Psychology 3 (3 q.h.)

Personality theory and measurement, behavior disorders, mental health, and psychotherapy. *Prereq.* 19.302 or equiv.

19.304 Statistics in Psychology 1 (3 q.h.)

Scales of measurement in psychological research, measures of central tendency, and variability. *Prereq.* 19.303 or equiv.

19.305 Statistics in Psychology 2 (3 q.h.)

Measures of correlation, introduction to probability, and statistical distributions. *Prereq.* 19.304 or equiv.

19.306 Statistics in Psychology 3 (3 q.h.)

Parametric and nonparametric tests of significance, including chi square, t-test, F test, and simple analysis of variance. *Prereq.* 19.305.

19.307 Psychology (Intensive) (9 q.h.)

An introductory survey of the historical backgrounds of psychology, psychological measurement and testing, and principles of animal and human learning. Principles of sensory processing, perception, motivation and emotion, and social influences on behavior. Personality theory and measurement, behavior disorders, mental health, and psychotherapy. (*Not open to students who have taken 19.301, 19.302, 19.303.*)

19.311 Developmental Psychology 1 (3 q.h.)

Development of the human individual from birth through early childhood. Includes the study of biological bases of development, sensory and motor functions, learning, socialization, perception and cognition, language, intelligence, and personality. In addition, specific topics such as the general heredity-environment question will be considered. *Prereq.* 19.304 or equiv.

19.312 Developmental Psychology 2 (3 q.h.)

Continuation of 19.311 with focus on childhood and adolescence. *Prereq.* 19.311 or equiv.

19.313 Developmental Psychology 3 (3 q.h.)

Continuation of 19.312 with focus on adulthood and old age. *Prereq.* 19.312 or equiv.

19.314 Personality 1 (3 q.h.)

A systematic study of the normal personality, its growth and development. Topics generally include: environmental and constitutional contributions; assessment of personality; research; and a survey of the major theories of personality. *Prereq.* 19.303 or equiv.

19.315 Personality 2 (Laboratory) (3 q.h.)

Introduction to methods and areas of research in personality. Usually includes problems of measurement, behavioral and dynamic concepts, and laboratory projects. *Prereq.* 19.314 or equiv.

19.323 Motivation (3 q.h.)

Survey of the various aspects of motivation. Such areas as primary and secondary reinforcement, unconscious motivation, effectance motivation, and the assessment of motives will be considered. *Prereq.* 19.303 or equiv.

19.324 Social Psychology 1 (3 q.h.)

The socialization process, social motives, interpersonal perception, group membership and structure. *Prereq.* 19.303 or equiv.

19.325 Social Psychology 2 (3 q.h.)

Attitudes, prejudice and ethnic relations, leadership, mass behavior and social movements, and the effects of mass media of communication. *Prereq.* 19.324 or equiv.

19.332 Industrial Psychology 1 (3 q.h.)

Psychology as applied to industry, including such topics as history, causation, selection and placement procedures, employee assessment, individual differences and their evaluation, and the place of psychological tests in industry. *Prereq.* 19.303 or equiv.

19.333 Industrial Psychology 2 (3 q.h.)

Personnel training and development, motivation and work, attitudes and job satisfaction, engineering psychology, human factors in accident causation. *Prereq.* 19.332 or *equiv.*

19.334 Industrial Psychology 3 (3 q.h.)

Supervision and leadership, morale, personnel counseling, the psychology of labor-management relations, human relations, and organizational behavior. *Prereq.* 19.333 or *equiv.*

19.336 Psychology of Thought (3 q.h.)

Psychological factors in intuition, imagination, problem solving, information processing, and concept learning. *Prereq.* 19.303 or *equiv.*

19.337 Psychology of Language (3 q.h.)

The child's acquisition of language, verbal habits, the analysis and measurement of meaning, cultural determinants of linguistic behavior, communication processes, and recent research in psycholinguistics. *Prereq.* 19.303 or *equiv.*

19.338 Psychology of Learning 1 (3 q.h.)

An analysis of the basic principles and techniques of operant and Pavlovian conditioning. Applications to therapeutic, educational, and specialized training programs will be considered. *Prereq.* 19.303 or *equiv.*

19.340 Psychology of Learning 2 (Laboratory) (3 q.h.)

Through direct experience, students may gain proficiency in the laboratory analysis of behavior, and in evaluating common generalizations about human behavior. Students may design and perform experiments in animal and human learning, memory, decision processes, concept formation, and other topics of individual interest. *Prereq.* 19.338 or *equiv.*

19.341 Abnormal Psychology 1 (3 q.h.)

An introduction to the study of the etiology and dynamics of the abnormal personality. *Prereq.* 19.303 or *equiv.*

19.342 Abnormal Psychology 2 (3 q.h.)

The symptomatology and treatment of the neuroses and psychoses. *Prereq.* 19.341 or *equiv.*

19.343 Abnormal Psychology 3 (3 q.h.)

Psychosomatic, psychopathic, and organic disorders; varieties of psychotherapy. *Prereq.* 19.342 or *equiv.*

19.344 Abnormal Psychology (Intensive) (9 q.h.)

Same as 19.341, 19.342, and 19.343. *Prereq.* 19.303 or *equiv.*

19.345 Psychological Therapies (3 q.h.)

A survey of techniques for treating deviant behavior, from classical psychoanalytical therapies through methods of behavior modification. *Prereq.* 19.343 or *equiv.*

19.349 Sensation and Perception 1 (3 q.h.)

An introduction to the nature of the perceptual world; the nature of object recognition and identification; spatial organization; contextual effects; learning and perception;

and the influence of attitudinal, motivational, and personality factors on perception. *Prereq.* 19.303 or *equiv.*

19.350 Sensation and Perception 2 (Laboratory) (3 q.h.)

Students usually do laboratory experiments on seeing, hearing, touching, and tasting. Studies may include dark adaptation, loudness, binaural interaction, brightness constancy, two-point touch thresholds, information processing, and interactions between the senses. *Prereq.* 19.349 or *equiv.*

19.360 Psychology of Women (3 q.h.)

The examination, in both historical and contemporary context, of the body of knowledge studying woman, her function in social roles, and her behavior as determined genetically, physiologically, and psychologically. Implications regarding future life styles, roles, and contributions of women will be considered.

19.361 Scientific Foundations of Psychology 1 (formerly Historical Development of Psychology 1) (3 q.h.)

Historical development of psychology from its philosophical beginnings. *Prereq.* Two of the following: 19.315, 19.340, 19.350, 19.381.

19.362 Scientific Foundations of Psychology 2 (formerly Historical Development of Psychology 2) (3 q.h.)

Major schools of psychology that have influenced modern psychological research, including functionalism, behaviorism, Gestalt psychology, and psychoanalysis. *Prereq.* 19.361 or *equiv.*

19.370 Linguistics of American Sign Language (4 q.h.)

A survey of the many issues raised by, and examination of, American Sign Language. A comparison of spoken language and sign language, emphasizing English and ASL; the history of ASL; iconicity; description and transcription of signs; phonology and morphology of ASL signs, analysis of grammatical principles used in ASL and their exploitation of spatial and temporal properties; and sociolinguistics of ASL and the Deaf community. *Prereq.* 19.372 or *consent of instructor.*

19.371 Senior Seminar in Psychology (3 q.h.)

Small groups of students meet to discuss topics in psychology of mutual interest. Each seminar has a different flavor, depending upon the student group and faculty. *Prereq.* Senior status or *consent of instructor.*

19.372 American Sign Language 1 (4 q.h.)

An introduction to American Sign Language and Deaf culture. Focuses on frequently used signs, basic rules of grammar, nonmanual components of ASL, and some cultural features of the Deaf community.

19.373 American Sign Language 2 (4 q.h.)

Continuation of basic language and culture study, with opportunities to build receptive and expressive sign vocabulary; use of the signing space, further use of nonmanual components, including facial expressions and body postures. Introduction to finger spelling. *Prereq.* 19.372 or *consent of instructor.*

19.374 Sign Language Interpreting 1 (4 q.h.)

First of a three-course sequence involving the theoretical and practical aspects of simultaneous interpretation of English into sign language and vice versa. Through lectures, discussions, and role playing, students are introduced to ethics, definitions, client-interpreter relationships, linguistic considerations; mechanics; and special considerations for various interpreting situations. Each student must have access to a cassette recorder and one cassette. *Prereq.* 19.378 or consent of instructor.

19.375 Sign Language Interpreting 2 (4 q.h.)

Lectures, discussions, and role playing cover topics that include ethics, roles, fees, and Registry of Interpreters for the Deaf (R.I.D.) certification procedure. Laboratory work focuses on increasing skills in simultaneously interpreting English to sign language and vice versa. Each student must have access to a cassette recorder and one cassette. *Prereq.* 19.374 or consent of instructor.

19.376 Sign Language Interpreting 3 (4 q.h.)

For students who have completed the equivalent of Sign Language Interpreting 1 and 2, and wish to upgrade their skills. Laboratory work focuses on interpreting ASL into English and vice versa, and transliterating spoken English into manual English. Each student must have access to a cassette recorder and one cassette. *Prereq.* 19.378 or consent of instructor.

19.377 Intermediate American Sign Language 1 (4 q.h.)

Emphasizes further development of receptive and expressive skills, finger spelling, vocabulary building, grammatical structures. Encourages more creative use of expression, classifiers, body postures, and the signing space. Introduces sign variations (regional and ethnic), and political and educational institutions of the Deaf community. *Prereq.* 19.373 or consent of instructor.

19.378 Intermediate American Sign Language 2 (4 q.h.)

Intensive practice involving expressive and receptive skills in story telling and dialogue. Introduction to language forms found in ASL poetry, and to features of culture as they are displayed in art and theatre. *Prereq.* 19.377 or consent of instructor.

19.379 American Sign Language for Service Professionals (4 q.h.)

How do you deal with deaf people in your work, and how do you communicate with them? The answer is offered in this course which is designed for service professionals, including law enforcement officers, medical personnel, flight attendants, and fire fighters. It focuses on basic and specialized vocabulary; introduces grammar rules; and provides exposure to the cultural aspects of the Deaf community.

19.380 Physiological Psychology 1 (3 q.h.)

How nerves function and work together in the nervous system; how our sense organs provide the brain with information about the outside world, how the brain acts to

produce behavior; and how such psychological concepts as perception, learning, motivation arousal, and emotion may relate to nervous system activity. *Prereq.* 19.303 or equiv.

19.381 Physiological Psychology 2 (Laboratory) (3 q.h.)

Laboratory experiments based on evolution of the nervous system, sensory and motor mechanisms, motivation and emotion, sleep, attention, perception, learning, and memory. *Prereq.* 19.380 or equiv.

19.382 Practicum in Sign Language Interpreting 1 (4 q.h.)

Sixty hours of sign language observation and interpreting under supervision of interpreters or staff in various settings arranged with the instructor. Twenty-four hours of seminar will be held to discuss ethics, professional conduct, and other problems that arise in student assignments. This sequence is designed to assist the student in preparing for the National Registry of Interpreters for the Deaf Certification Evaluation. *Prereq.* 19.376 or equiv.

19.383 Practicum in Sign Language Interpreting 2 (4 q.h.)

A continuation of 19.382. *Prereq.* 19.382.

19.384 Practicum in Sign Language Interpreting 3 (4 q.h.)

A continuation of 19.383. *Prereq.* 19.383.

19.385 American Deaf Culture (formerly Psycho-Social Orientation to Deaf People) (4 q.h.)

The status of deaf people as a linguistic and cultural minority group. It is designed to try to give both lay people and persons experienced with deaf people systematic understanding of the various communication methods and the concomitant oral-manual controversy, nature of sign language and its varieties, educational and historical treatment to deafness and sociological and cultural make-up of the Deaf community.

19.388 Drugs and Behavior (3 q.h.)

The application of quantitative behavior techniques in animals and man, to determine the behavioral effects of pharmacological agents. A systematic survey of the experimental literature. *Prereq.* 19.303 or equiv.

19.389 Impact of Psychology on Society (3 q.h.)

A consideration of such developments as the uses of intelligence and aptitude tests; psychosurgery and electroconvulsive therapy; techniques of behavior modification and control; minority and women's rights movements; direct brain stimulation by implanted electrodes; use of psychoactive drugs; use of the lie detector machine; and the application of experimental techniques to humans. *Prereq.* 19.303 or equiv.

19.391 Honors Program 1 (4 q.h.)

Prereq. Approval of the Dean.

19.392 Honors Program 2 (4 q.h.)

Prereq. 19.391

19.393 Honors Program 3 (4 q.h.)

Prereq. 19.392

19.401 Psychology A (6 q.h.)

Same as 19.301 and 19.302.

19.491 Directed Study 1 (3 q.h.)

An opportunity for qualified students to take an upperclass course in their major area on an individual basis. Petitions and procedural instructions are available in the office of University College Social Science Programs, 204 Churchill Hall, 617-437-2416. *Prereq.* 87 q.h.

19.492 Directed Study 2 (3 q.h.)

An opportunity to initiate a second individual study as described in 19.491. *Prereq.* 19.491.

19.499 Field Work in Psychology (6 q.h.)

Refer to page 65 describing field work courses. To be discussed with Department Consultant or Major Adviser prior to registration.

20: Anthropology

Consultant. (See Sociology)

20.301 Anthropology 1 (3 q.h.)

An introduction to elements of physical anthropology, covering such subjects as the primates, fossil humans and evolution, problems of heredity and genetics, race and racial classifications, the bases of cultural behavior. (*Not open to students who have credit for 21.401.*)

20.302 Anthropology 2 (3 q.h.)

An introduction to socio-cultural anthropology. Examines the nature of language, and the cultural institutions of human groups with simple foraging and horticultural adaptations. *Prereq.* 20.301 or equiv. (*Not open to students who have credit for 21.402.*)

20.303 Anthropology 3 (3 q.h.)

The institutions and cultures of technologically advanced societies and states. *Prereq.* 20.302 or equiv.

20.304 Anthropology (Intensive) (9 q.h.)

Same as 20.301, 20.302, and 20.303.

20.321 Individual and Culture (3 q.h.)

Cross-cultural comparisons of the socialization and enculturation of children and adults with respect to roles, values, and personality. Course may examine theories and methods used in psychological anthropology.

20.331 Social Organization of Non-State Societies (3 q.h.)

Detailed studies of the institutions of peoples with collecting-hunting and horticultural subsistence economies.

20.332 Religion in Cross-Cultural Perspective (3 q.h.)

Comparative analyses of the rituals, beliefs, and religious institutions of various human groups.

20.333 Culture Change (3 q.h.)

An examination of the processes occurring in situations involving culture contact, conquest, or colonialism.

20.337 Anthropological Theory (3 q.h.)

History of the major orientations and philosophies in anthropology: evolutionist, culture area, and historical ap-

proaches; and functional, structural, ecological, and cognitive modes of analysis.

20.341 Native North American Peoples (3 q.h.)

Examines the past and present circumstances of a number of native North American peoples.

20.344 African Peoples and Cultures (3 q.h.)

African geography, prehistory, and culture; the spectrum of societal complexity, ranging from Mbuti egalitarianism to Ashanti federation and the problems of political, economic, and social change in contemporary Africa.

20.347 Latin American Peoples and Cultures (3 q.h.)

The tribal and peasant adaptations of native and Hispanic populations to changing conditions in Latin America.

20.348 Studying the Family Cross-Culturally (3 q.h.)

Kinship and family systems in a variety of cultural settings.

20.349 Folklore (3 q.h.)

Folklore, art, and song in various societies and how it is studied. Contemporary American materials are examined.

20.350 Peasant Society and Culture (3 q.h.)

Analyses of representative case studies of traditional peasant cultures in the non-Western and Western world.

20.360 Language and Culture (3 q.h.)

The functions of language and other forms of communication in human society. An introduction to analyses of the relationship between patterns of communication and other aspects of culture.

20.401 Principles of Anthropology 1 (4 q.h.)

An introduction to elements of physical anthropology, primates, fossil humans and evolution, problems of heredity and genetics, race and racial classifications. Also may examine the nature of language and cultural adaptation. (*Not open to students who have credit for 20.301 or 20.302.*)

20.402 Principles of Anthropology 2 (4 q.h.)

Surveys the institutions of technologically simple non-Western societies, as well as those of technologically advanced societies and states. *Prereq.* 20.401 or equiv. (*Not open to students who have credit for 20.302 or 20.303.*)

20.499 Field Work in Anthropology (6 q.h.)

Refer to page 65 describing field work courses. To be arranged with a departmental field work adviser prior to registration. *Prereq.* Major in Sociology-Anthropology and completion of 15 credits in Anthropology. (Students may receive credit for only one departmental field work course. Credit for 20.499 precludes credit for 21.499. Students who are eligible for departmental Honors courses may take any combination of field work and Honors totaling three courses.)

21: Sociology

Consultant: Prof. Wilfred Holton, Sociology Dept., (College of Arts and Sciences)

21.301 Sociology 1 (3 q.h.)

Basic concepts and theories relating to the study of humans as participants in group life with emphasis on social structure, culture, socialization, and the family. Course materials require competency in reading and writing skills. *(Not open to students who have credit for 21.401.)*

21.302 Sociology 2 (3 q.h.)

A continuation of Sociology 1, with major emphasis on primary groups, associations, social stratification, collective behavior, and population. Term papers or essays may be required. *Prereq. 21.301 or equiv. (Not open to students who have credit for 21.401 or 21.402.)*

21.303 Sociology 3 (3 q.h.)

A continuation of Sociology 2, emphasizing a critical analysis of American society, with particular attention to problems of social, political, urban, and industrial change. *Prereq. 21.302 or equiv. (Not open to students who have credit for 21.402.)*

21.304 Sociology (Intensive) (9 q.h.)

Basic concepts and theories relating to the study of humans as participants in group life. Examines social structure, culture, socialization, the family, primary groups, associations, social stratification, collective behavior, population, and problems of social, political, urban, and industrial change. Term papers or essays may be required. *(Not open to students who have taken 21.301, 21.302 or 21.303.)*

21.305 Drugs and Society (3 q.h.)

An introduction to the sociology of drugs. Examines social definitions of drugs, conditions of their use and socialization into drug use. Considers deviant drug use and effects of social control on definitions and use. A range of licit and illicit drugs will be considered.

21.306 Sociology of Religion (3 q.h.)

An examination of the role of religious belief systems and institutions in classical and Western societies.

21.307 Sex in Society: The Study of Sex Roles (3 q.h.)

Analysis of historical and contemporary development in how men's and women's changing roles are related to the society at large.

21.308 Sociology of Literature (3 q.h.)

Sociological analyses of the contexts and content of literary productions, such as novels, song lyrics, sci-fi, and films.

21.309 Sociology of Socialist and Utopian Societies (3 q.h.)

Examines alternative social orders comparing the ideology, economy, social organization, polity, child care, sex roles, etc., of such groups as the Hutterites, Amish, Kibbutzniks, Shakers, and such modern socialist states as China, the Soviet Union, Cuba, etc.

21.312 Social Research Methods 1: Generating and Investigating Research Problems (4 q.h.)

Methods for producing knowledge through social research will be examined. Emphasis will be placed upon the practical aspects of research, i.e., the problems that sociologists face in doing research and how they have solved these problems. Students will be required to design a small study.

21.313 Social Research Methods 2: Tabulating and Analyzing Social Data (4 q.h.)

Methods of tabulating, presenting, summarizing and analyzing data. Students will be required to learn elementary descriptive and inferential statistics and how to use them. Statistics as a tool will be emphasized, and students will be introduced to the use of the computer. *Prereq. 21.312 or equiv.*

21.314 Social Research Methods 3: Doing Social Research (4 q.h.)

Students will be required to carry out the study they designed in Research Methods 1, analyze data, and report results. The ethics and politics of social research will be discussed, as will relationships among social action, social research, and theory building. *Prereq. 21.313 or equiv.*

21.317 Social Theory 1 (3 q.h.)

A historical survey of sociological theorists, including the work of deTocqueville, Comte, Marx, Durkheim, Cooley, and others. *Prereq. Consent of the instructor or 12 q.h. in Sociology-Anthropology*

21.318 Social Theory 2 (3 q.h.)

A study of major theoretical issues in sociology. Discussion concentrates on systematic questions and topics, as opposed to particular theorists, but material is drawn from theorists such as Weber, Simmel, Thomas, Mannheim, Merton, and Parsons. *Prereq. 21.317 or equiv.*

21.319 Social Theory 3 (3 q.h.)

A seminar in which the principal focus will be upon questions of theoretical interest, e.g., the problem of order, the problem of change, the role of the individual in change. Students will present papers in class. *Prereq. 21.318 or equiv.*

21.328 Social Stratification: Class, Status, and Power (3 q.h.)

A comparative study of the nature of class structure, with emphasis on the United States. Discussion of such topics as theories of class structure, factors determining class membership, differential class behavior, and social mobility.

21.331 Social Change (3 q.h.)

An analysis of changing patterns in social and economic institutions and of modern social movements.

21.334 Social Control (3 q.h.)

The study of group membership as a determinant of behavior, analysis of status and role, patterns of authority, power, and group ideology as factors in the evaluation of conduct.

21.335 Political Sociology: Who Gets What (3 q.h.)

The social structure of political life, emphasizing relationships in modern society between classes, occupations, racial and ethnic groups, etc. Examines how levels of opportunity affect political activities and institutions.

21.338 (see 25.350)

21.339 (see 25.351)

21.340 (see 25.352)

21.341 Sociology of Sport (3 q.h.)

An analysis of games and sport from a sociological perspective, with particular reference to contemporary American society. Included are such topics as the role of play in modern society, the social organization of specific games and sports, and the relationship of organized sport to the larger society.

21.343 (see 25.343)

21.344 (see 25.344)

21.345 (see 25.345)

21.346 Sociology of Deviant Behavior (3 q.h.)

Analysis of a variety of social problems with relation to the organization of society. Particular attention will be given to alcoholism, sex offenses, drug abuse, mental disorder, and other responses to conditions of urban industrial society.

21.347 Social Problems (3 q.h.)

An overview of contemporary American social problems and the application of sociological concepts, methods, and principles to these problems.

21.350 Juvenile Delinquency (3 q.h.)

A study of factors in delinquency and an examination of their implications for prevention, rehabilitation, and treatment.

21.351 Family and Marriage 1 (3 q.h.)

A comparative and historical treatment stressing the past history and development of the family.

21.352 Family and Marriage 2 (3 q.h.)

A continuation of Family and Marriage 1, emphasizing the backgrounds of contemporary problems in the context of functions, forms, and processes of this institution.

21.353 Intergroup Relations 1 (3 q.h.)

A study of the relationships between various racial, national, cultural, and religious groups, with emphasis on the historical development of black-white relationships in American society.

21.354 Intergroup Relations 2 (3 q.h.)

A continuation of Intergroup Relations 1, stressing the problems of contemporary minority peoples in American and other societies. *Prereq.* 21.353 or *equiv*

21.356 Sociology of Inequality (3 q.h.)

An analysis of American class and ethnic differences in historical perspective, drawing on comparisons with other

countries. Critical evaluation of sociological research and theories relating to the causes, effects, and societal responses to poverty. Suitable for students in applied fields such as nursing, criminal justice, education, allied health, pre-med, and pre-law.

21.357 Urban Sociology (3 q.h.)

Analyses of the various causes, characteristics, and effects of urbanization in several different cultures. Specific attention is given to the problem of urban and suburban living and the changing structure of the city.

21.358 Community Analysis (3 q.h.)

Demographic and ecological theories of man's relation to his physical environment. Development of the concept of community and discussion of community study methods. Contrasts between rural communities and urban neighborhoods. Discussion and evaluation of community action programs.

21.359 Seminar in Urban Studies (3 q.h.)

Interdisciplinary approaches to analyses of urban issues, continuing student projects. *Prereq.* One previous course in urban studies field.

21.360 Medical Sociology (3 q.h.)

Sociological concepts and research relating to the study of patterns of behavior in the areas of health and disease. Emphasis on the family, community, medical organizations, class, and status as social sub-systems related to the field of health.

21.361 Sociology of Mental Health (3 q.h.)

Sociological aspects of mental health and mental disorder: the social history of mental illness, epidemiological and cross-cultural approaches to mental disorder, the career of the mental patient, the functions of psychiatry in society, community and social treatment modalities, and social psychiatry.

21.363 Social Gerontology: The Aged in Society (3 q.h.)

An examination of social factors involved in aging, with specific reference to how biological and psychological age changes influence behavior, social roles, and cultural patterns. The relation of aging to social change and special provisions for the elderly

21.364 Sociology of Childhood (3 q.h.)

An examination in both historical and contemporary context of the economic, political, psychological, and social roles and functions of the child. Special attention is given to the current legal and social status of children.

21.365 Sociology of Education (3 q.h.)

The comparative study of formal and informal educational systems. Emphasis will be placed on the structures and functioning of educational institutions for the larger societies of which they are a part.

21.370 Sociology of Occupations and Professions (3 q.h.)

An analysis of the social relations within occupational groups of occupational structure and of institutional aspects of an

occupation. Relationships between supervisors, peers, colleagues, subordinates, and clientele; their significance for work-role behavior.

21.373 Sociology of Industry (3 q.h.)

Comparison of pre-industrial and industrial society, stressing the impact of industry on society and the relationship between industry, culture, and values. Diversification, specialization, human relations, and formal and informal groups are dealt with.

21.375 Sociology of Formal Organizations: Humans, Machines, and Bureaucracy (3 q.h.)

A study of formal organizations and the principles that govern organizational life. Weber's theory of bureaucracy and the concept of authority; communication systems and other conceptions of formal organizations. The structure of work groups and their effect on the larger organization.

21.391 Honors Program 1 (4 q.h.)

Prereq. 21.312, 21.313, 21.314 and 21.317, 21.318, 21.319 and approval of the Dean. (Students may take any combination of field work and Honors totaling three courses.)

21.392 Honors Program 2 (4 q.h.)

Prereq. 21.391.

21.393 Honors Program 3 (4 q.h.)

Prereq. 21.392.

21.401 Principles of Sociology 1 (Recommended for Majors) (4 q.h.)

An introduction to basic concepts and theories relating to the study of humans as participants in group life. Emphasis is placed on socialization, culture, social structure, primary groups, family, social stratification, and population. (Not open to students who have credit for 21.301 or 21.302.)

21.402 Principles of Sociology 2 (4 q.h.)

A continuation of Principles of Sociology 1, with emphasis on a critical analysis of American society with particular attention to problems of social, political, urban, and industrial change. *Prereq.* 21.401 or equiv. (Not open to students who have credit for 21.302 or 21.303.)

21.403 The Sociology of Law (3 q.h.)

The functions of law in modern society; social control and social conflict resolution. Legislation; litigation and adjudication as social processes. The legal profession, the courts, and the administration of justice. Intensive examination of selected laws in relation to current social issues and politics.

21.404 Minorities and the Law (3 q.h.)

The development of the rights of individuals in American society to liberty, privacy, equality, and well-being. Changes in the status of minority groups—racial, ethnic, religious, sex—through legislation and adjudication. An examination of laws and judicial decisions on controversial social issues.

21.405 Legal Aspects of Social Institutions (3 q.h.)

Examination of laws regulating domestic, industrial, and other major social relationships, and their effects on the

structure of those institutions. Developments in laws will be related to changes in the values and social structures of the society.

21.417 Social Theory 1 (Intensive) (4 q.h.)

A historical survey of sociological theorists, including the work of deTocqueville, Comte, Marx, Durkheim, Cooley, Weber, Simmel, and others. *Prereq.* Consent of the instructor or 12 q.h. in *Sociology-Anthropology*. (Not open to students who have credit for 21.317, 21.318, or 21.319.)

21.418 Social Theory 2 (Intensive) (4 q.h.)

A study of the major theoretical issues in sociology. Discussion concentrates on systematic questions and topics, but material is drawn from theorists such as Mannheim, Merton, Parsons. Students may be required to present papers in class on questions of theoretical interest, e.g., the problem of order, the problem of change, the role of the individual in change, etc. *Prereq.* 21.417 or equiv. (Not open to students who have credit for 21.317, 21.318, or 21.319.)

21.491 Directed Study 1 (3 q.h.)

An opportunity for qualified students to take an upper-level course in their major area on an individual basis. Petitions and procedural instructions are available in the office of University College Social Science Programs, 204 Churchill Hall, 617-437-2416.

21.492 Directed Study 2 (3 q.h.)

An opportunity to initiate individual study as described above. *Prereq.* 21.491.

21.499 Field Work in Sociology (6 q.h.)

Refer to page 65 describing field work courses.

To be arranged with a departmental field work adviser prior to registration. *Prereq.* Major in *Sociology-Anthropology* and completion of 15 credits in *Sociology*. (Students may receive credit for only one departmental field work course. Credit for 21.499 precludes credit for 20.499. Students who are eligible for departmental Honors courses may take any combination of field work and Honors totaling three courses.)

25: Social Welfare

Course Coordinator: Prof. Wilfred Holton, Sociology Dept. (College of Arts and Sciences)

25.343 Introduction to Social Work Practice 1 (3 q.h.)

An introduction to the functions of the helping profession of social work, its settings and methods. Specific techniques such as interviewing, history taking, and recording skills are presented.

25.344 Introduction to Social Work Practice 2 (3 q.h.)

A continuation of Introduction to Social Work Practice 1, with particular attention to the functioning of social workers in selected settings.

25.345 Introduction to Social Work Practice 3 (3 q.h.)

A continuation of Introduction to Social Work Practice 2, with emphasis on enhancement of practice skills.

25.350 Human Services Professions (3 q.h.)

The human services, viewed from the perspectives of the recipient, the worker, and the society at large are analysed with respect to 1) why they are needed, 2) how agencies and programs developed, and 3) the basic skills, attitudes, values, and knowledge required of the human service worker today.

25.351 Sociology of Human Service Organizations (3 q.h.)

The structure and resource bases of various human service organizations are analyzed in terms of the types of services they offer, how these services are delivered, and the populations that are served. The managerial structure of traditional human service agencies and alternative community resource groups will be contrasted to better understand how well the needs of clients are being met.

25.352 Evaluation of Social Intervention (3 q.h.)

Introduces basic concepts of theory, practice, and evaluation in the human service programs. Specific programs will be critiqued and evaluated from worker and client perspectives. Funding sources and the role of the community or larger agency will also be examined. Students are encouraged to bring in their own case materials for class discussion.

22: Political Science

Consultant: Prof. R. L. Cord, Chairman, Political Science Dept. (College of Arts and Sciences)

22.403 Introduction to Politics (formerly 22.301, Principles of Political Science 1) (3 q.h.)

An introduction to contemporary political science, including consideration of basic concepts in political analysis, the role of governmental institutions, political representation, political ideologies, and the scope and methods of political science.

22.404 Introduction to American Government (3 q.h.)

An investigation of the American governmental and political processes, studying constitutionalism institutions, political behavior, and liberties.

22.405 Introduction to Comparative Politics (3 q.h.)

A comparative study of constitutional and totalitarian systems, including the Western European and Soviet patterns.

22.305 Contemporary Political Theory (3 q.h.)

Political ideas and systems of political thought from Machiavelli to the present. *Prereq.* 22.336 or *equiv.*

22.306 American Political Thought (3 q.h.)

Political thought from the colonial period to the present, including a study of the impact of religious, economic, and judicial theory on the structure of American ideas.

22.308 Research Methods (3 q.h.)

An introduction to some of the most common methods of carrying out research in the discipline of political science. Problems of theory construction, data-gathering, and a selection of analytical research tools including bibliographical aids and the computer are examined.

22.309 Public Policy Analysis (3 q.h.)

Procedures for the analysis of public policy, including discussion of selected cases of public policy at the local, state, or Federal levels. *Prereq.* 22.316, 22.317.

22.310 Public Budgeting (3 q.h.)

The politics, procedures, and goals of government budgeting at the Federal, state, and local levels, including expense budgeting, capital budgeting, and program budgeting. *Prereq.* 22.316, 22.317.

22.311 Public Personnel Administration (3 q.h.)

The basic elements of personnel administration, including recruitment, training, classification, promotion, and executive development. Special attention will be given to current problems, such as equal opportunity, public employee unionism, and collective bargaining. *Prereq.* 22.316, 22.317.

22.312 Urban and Metropolitan Government (3 q.h.)

The political, structural, and functional problems of an urbanizing United States, including an analysis of urban, suburban, and metropolitan governments.

22.313 Political Parties and Pressure Groups (3 q.h.)

Party government in the United States and Great Britain. A contrasting study focusing on the interaction of party and government.

22.314 American Constitutional Law (3 q.h.)

A case analysis of the development of Federalism, the separation of powers, and the role of the Federal and state courts in constitutional development.

22.315 Civil Rights (3 q.h.)

An evaluation of the quality and content of civil liberties in the United States. Emphasis usually is placed on the first, fifth, sixth, 14th, and 15th amendments to the Constitution.

22.316 Public Administration 1 (3 q.h.)

An introduction to the theory, forms, and processes of administration at the national and state level.

22.317 Public Administration 2 (3 q.h.)

Selected problems. Case study approach to examination of relation between the theory and practice of public administration. *Prereq.* 22.316 or *equiv.*

22.318 Government and Politics of the States (3 q.h.)

A study of state and local government, problems, and the function and operational responses to them.

22.319 The Legislative Process (3 q.h.)

An institutional, functional analysis of the roles of Congress, the executive, and political parties in the legislative process.

22.320 The American Presidency (3 q.h.)

A multifaceted examination of the nation's Chief Executive: the presidential electoral process; the President's many constituencies; and the differing styles of various 20th-century Presidents. The constitutional and extra-constitutional powers of the office are some areas considered.

22.321 Public Administration (Intensive) (6 q.h.)

Same as 22.316 and 22.317.

22.328 Procedural Due Process (3 q.h.)

A study of due process in the American Constitutional scheme.

22.329 Comparative Politics (Intensive) (4 q.h.)

A comparative analysis of political culture, organization, and behavior in different national settings.

22.332 International Organization (3 q.h.)

Development of international organizations with special emphasis on the United Nations, specialized agencies, and regional organizations.

22.333 Formulating American Foreign Policy (3 q.h.)

The Constitution and political instruments for the formulation of American foreign policy

22.334 Soviet Foreign Policy (3 q.h.)

A study of the evolution of Soviet foreign policy since 1917, with emphasis on the development of the international Communist movement.

22.335 International Relations (4 q.h.)

Elements of and limitations on national power. Contemporary world politics, problems of war, and peaceful co-existence.

22.336 Introduction to Political Theory (4 q.h.)

Development of the political ideas of the Western world. The major philosophers of Greece, Rome, the Christian Era, and the Renaissance.

22.337 European Political Parties (3 q.h.)

A study of political party systems in England, France, and Germany, emphasizing ideology, organization in and out of Parliament, electoral strategies, and voter behavior.

22.338 Communist China's Foreign Policy (3 q.h.)

A study of the Peking government's relations with Afro-Asia, the Soviet orbit, and the West. Attention is given to policy objectives, strategy, tactics, and the methods of decision making in both the party and state apparatus.

22.341 International Law (3 q.h.)

A procedural and substantive study of legal relations among nation states.

22.342 American Foreign Policy 1 (3 q.h.)

Recent and current American foreign affairs.

22.343 American Foreign Policy 2 (3 q.h.)

Recent and current American foreign affairs continued. *Prereq.* 22.342 or *equiv.*

22.344 Government and Politics in the Soviet Union 1 (3 q.h.)

An analysis of modern totalitarian theory and practice is followed by a study of the ideological and historical bases of the Soviet dictatorship. *Prereq.* 22.329 or *equiv.*

22.345 Government and Politics in the Soviet Union 2 (3 q.h.)

A continuation of 22.344. A study of the Soviet Federalism, party, and state organization, with special attention to the

problems of political succession. *Prereq.* 22.344 or *equiv.*

22.347 Government and Politics of Communist China 1 (3 q.h.)

A study of Chinese political culture, with emphasis on the 19th-century cultural, economic, and political impact of the West, the emergence of the Communist Party under the leadership of Mao, and the progressive disintegration of Kuomintang leadership. *Prereq.* 22.329 or *equiv.*

22.348 Government and Politics of Communist China 2 (3 q.h.)

A study of ideology, party, and state organization and behavior, and the Cultural Revolution. *Prereq.* 22.347 or *equiv.*

22.351 Current Political Issues (3 q.h.)

A topical analysis of the constitutional and political basis of selected problems in American political life.

22.352 Government and Politics in the Middle East 1 (3 q.h.)

A study of political change, economic growth, and social adaptation in selected countries of the Middle East. Foreign policies are also considered, especially the ties of the Middle Eastern countries with Northern Africa. *Prereq.* 22.329 or *equiv.*

22.353 Government and Politics in the Middle East 2 (3 q.h.)

A continuation of 22.352. *Prereq.* 22.352 or *equiv.*

22.355 Government and Politics of Latin America 1 (3 q.h.)

Discussion of the historical background of the Latin American nations and analysis of their cultural, economic, social, and political characteristics, including political violence and the breakdown of democratic governments. *Prereq.* 22.329 or *equiv.*

22.356 Government and Politics of Latin America 2 (3 q.h.)

Analysis of politics of Mexico, Cuba, and Chile; comparison of the Communist, one-party, and democratic approaches to political development; each country is used as an example. *Prereq.* 22.355 or *equiv.*

22.358 Government and Politics of Southeast Asia (3 q.h.)

A study of political instability and problems of establishing democratic structures and processes in the Philippines, Thailand, and India. *Prereq.* 22.329 or *equiv.*

22.359 Government and Politics of Japan (3 q.h.)

The historical development of the Japanese nation, with particular attention to the growth of fascism and efforts to create a viable democracy since World War II.

22.360 Politics and Policies of the Developing Nations 1 (3 q.h.)

Colonialism and the struggles for independence are discussed, and the common problems of developing nations are analyzed. Topics may include economic development,

urbanization, cultural fragmentation, and revolution. *Prereq.* 22.329 or *equiv.*

22.361 Politics and Policies of the Developing Nations 2 (3 q.h.)

Based on the foundation provided in Part 1 Deals with efforts of developing countries to achieve rapid social, economic, and political modernization. The frequency of military takeovers and the prevalence of corrupt, inefficient government bureaucracies are discussed. The democratic and authoritarian avenues toward development are compared and evaluated. *Prereq.* 22.360 or *equiv.*

22.362 Government and Politics of Sub-Saharan Africa (3 q.h.)

Comparative analysis of political culture, organization, and behavior of African states south of the Sahara. *Prereq.* 22.329 or *equiv.*

22.363 Government and Politics of Northern Africa (3 q.h.)

Comparative analysis of political culture, organization, and behavior of African states north of the Sahara, with emphasis on Morocco, Algeria, Tunisia, and Egypt. *Prereq.* 22.329 or *equiv.*

22.364 Communism in Eastern Europe 1 (3 q.h.)

Conditions and circumstances surrounding the establishment of Communist regimes in Eastern Europe immediately after the Second World War, and their relations with the Soviet Union. *Prereq.* 22.329 or *equiv.*

22.365 Communism in Eastern Europe 2 (3 q.h.)

A continuation of 22.364 A study of nationalism, popular revolt, and socio-economic change in the 1950s and 1960s; the changing role of the Soviet Union in bloc affairs and the development of polycentrism. *Prereq.* 22.364 or *equiv.*

22.370 Consumer Advocacy 1 (3 q.h.)

A pragmatic course designed to define and expand the role of consumers in the marketplace. It is intended to focus upon consumer issues that confront us daily, so that individuals may deal with them intelligently and effectively. While not designed to make students "consumer-lawyers," it will touch upon legal as well as social, economic, and political aspects of consumer problems.

22.371 Consumer Advocacy 2 (3 q.h.)

A continuation of 22.370. *Prereq.* 22.370 or *equiv.*

22.372 Consumer Advocacy 3 (3 q.h.)

A continuation of 22.371. *Prereq.* 22.371 or *equiv.*

22.391 Honors Program 1 (4 q.h.)

Prereq. Approval of the Dean.

22.392 Honors Program 2 (4 q.h.)

Prereq. 22.391.

22.393 Honors Program 3 (4 q.h.)

Prereq. 22.392.

22.401 Introduction to Political Science 1 (4 q.h.)

Basic political concepts and forces of organization from the classical Greeks to the modern nation-state. The Soviet

Union and the United Kingdom are contrasted as contemporary illustrations of the institutional distinction between a totalitarian and constitutional system

22.402 Introduction to Political Science 2 (4 q.h.)

The development of operational liberty in the United States and its constitutional underpinnings are considered, together with an analysis of the national American political process and the conduct of recent American foreign relations.

22.406 Organizational Theory (3 q.h.)

Deals with people and organizations and focuses on organizational and societal problems as a way of understanding how we can survive in a bureaucratic system.

22.491 Directed Study 1 (3 q.h.)

An opportunity for qualified students to take an upper-level course in their major area on an individual basis. Petitions and procedural instructions are available in the office of University College Social Science Programs, 204 Churchill Hall, 617-437-2416. *Prereq.* 87 q.h.

22.492 Directed Study 2 (3 q.h.)

An opportunity to initiate a second individual study as described above. *Prereq.* 22.491

23: History

Consultant: Raymond H. Robinson, Chairman, Department of History (College of Arts and Sciences)

Coordinator of Western Civilization and Adviser to History Majors: Gerald H. Herman, Department of History (College of Arts and Sciences)

23.300 The Historian's Craft (3 q.h.)

The ways in which the historian studies the past, with emphasis on research and writing

23.301 History of Civilization 1 (3 q.h.)

A worldwide overview of the development of human institutions from evolution through the end of the European Middle Ages. Emphasis generally will be placed on the continuities and changes that occur within civilizations and on the similarities, differences, and relationships that exist among contemporary civilizations around the world. Taught with a view to drawing out the implications of each historical period for our lives today.

23.302 History of Civilization 2 (3 q.h.)

The age of transition to the early modern world, emphasizing the intellectual, technological, and political expansion of Europe and the reactions of the rest of the world to that expansion. Special attention generally will be given to such topics as the rise of dynastic states, the rise and fall of mercantilism, the scientific revolution, exploration and gunpowder technology, and order and revolution. The period is from the end of the European Middle Ages to the coming of the French Revolution in 1789.

23.303 History of Civilization 3 (3 q.h.)

The modern world from 1789 to the present. Topics usually include capitalism and industrialization, nationalism and imperialism, the clash of ideologies in the 19th century,

and a study of total war in the present century. Based on this historical study, the prospects for the future will be explored.

23.304 American History 1 (3 q.h.)

America from 1763 to 1848, with attention to the development of political, economic, and social institutions in the new republic.

23.305 American History 2 (3 q.h.)

The United States from 1848 to 1917, with attention to the coming of the Civil War, economic development thereafter, and the Progressive Era.

23.306 American History 3 (3 q.h.)

The United States since 1917, an age of urbanized industrialism and international involvement and crisis.

23.309 History of Civilization A (4 q.h.)

The major ideas and institutions of civilization from ancient times to 1648. *(Not open to students who intend to receive credit for 23.301 and/or 23.302.)*

23.310 History of Civilization B (4 q.h.)

A continuation of 23.309, covering the period since 1648. *(Not open to students who intend to receive credit for 23.302 and/or 23.303.)*

23.311 American History A (4 q.h.)

America from 1763 to 1877. *(Not open to students who intend to receive credit for 23.304 and/or 23.305.)*

23.312 American History B (4 q.h.)

The United States since 1877. *(Not open to students who intend to receive credit for 23.305 and/or 23.306.)*

23.315 Women in American History (3 q.h., Group III)

A historical examination of the position and role of women in American life.

23.316 Women in European History (3 q.h., Group II)

A historical examination of the position and role of women in European life.

23.317 European Urban History to 1750 (3 q.h., Group I)

European cities from ancient times to the age of industrialization.

23.318 European Urban History since 1750 (3 q.h., Group II)

The relationship of industrialization and urbanization in Europe from the mid-18th century to the present.

23.319 Health and Sickness: Historical Perspectives (3 q.h., Group I, II, III, or IV)

A survey of medical theories from ancient times to the present, emphasizing concepts of disease causation and the health care systems or institutions derived from them. Medical theory and practice are related to both the general history of the period and the particular political, economic, or social circumstances that influenced attitudes regarding health care.

23.320 Population in History (3 q.h., Group I or II)

An application of the principles of demography to European history from Roman times to the present.

23.321 Ancient Middle East (3 q.h., Group I)

A study of ancient cultures and peoples in the Middle East to the rise of Islam.

23.322 Ancient Greece (3 q.h., Group I)

The origin and development of Greek civilization.

23.323 Ancient Rome (3 q.h., Group I)

Roman civilization in ancient times, with emphasis on the rise of the Republic and the decline of the Empire.

23.328 The Middle Ages (3 q.h., Group I)

The history of Europe from the fall of Rome to 1350.

23.330 Byzantine History (3 q.h., Group I)

A political and cultural history of the Eastern Christian world from the fourth century to the sacking of Constantinople in 1453.

23.331 Islamic History (3 q.h., Group IV)

The history of the Muslim Arab world from the seventh century to the end of the Abbasid Caliphate in 1258.

23.332 Ottoman History (3 q.h., Group IV)

A study of the rise, glory, decay, and attempts at reform in the Ottoman Empire from the 13th century to World War I.

23.333 History of the Jews 1 (3 q.h., Group I)

A survey of the Jews from the end of antiquity to early modern times from a cultural and intellectual perspective.

23.334 History of the Jews 2 (3 q.h., Group II)

The role and position of the Jews in modern history.

23.335 Modern Middle East (3 q.h., Group IV)

The Middle East since 1914, with attention to Zionism, Pan Arabism, the effects of two world wars, and the postwar settlements.

23.336 History of Eastern Europe 1 (3 q.h., Group I)

Prepolitical Slavic peoples on the eve of the fall of the Roman Empire; Christianity from Rome and Christianity from Constantinople and the Kingdom of Moravia; the genesis of Poland and the western Slavs and their relationship with Kievan Russia and the eastern Slavs. The decline of Bulgaria and the rise of Hungary; the Polish-Lithuanian Union of 1386 and the origin of the isolation of Russia from western Europe; the Knights of the Teutonic Order and the secularization of Prussia. The Ottoman advance into eastern Europe.

23.337 History of Eastern Europe 2 (3 q.h., Group II)

Stefan Bathory and papal interest in Orthodox Russia; western interference in Russia's "Time of Troubles"; Swedish invasions and the Northern War, the decline of Poland through Stanislaw Poniatowski and Czarina Catherine the Great of Russia. The partitions of Poland and Tadeusz Kosciuszko; Napoleon; revolutionary movements through 1848; Slavic romantic revolutionaries and the *fin de siècle*.

World War I and the Reconstruction of Eastern Europe. Hitler, Stalin, and World War II. The "Iron Curtain."

23.338 European Intellectual History, 1600–1815 (3 q.h., Group II)

The broad spectrum of thought and culture of the period of the scientific revolution, the Baroque, the Enlightenment, and the Age of Revolutions.

23.339 European Intellectual History since 1815 (3 q.h., Group II)

The main currents of European thought considered in their social and political context from Romanticism to the present.

23.340 Renaissance and Reformation (3 q.h., Group I)

The history of Europe from 1350 to 1648, with attention to intellectual and religious life and political and economic developments.

23.341 Europe, 1648–1789 (3 q.h., Group I)

Europe from the end of the Thirty Years' War to the French Revolution.

23.342 Europe, 1789–1870 (3 q.h., Group II)

Europe from the French Revolution to the Franco-Prussian War, with a stress on the struggles for liberalism and nationalism.

23.346 Europe, 1870–1921 (3 q.h., Group II)

The background of World War I—nationalism, militarism, imperialism, the alliance system—and the making of war and peace.

23.347 Europe since 1921 (3 q.h., Group II)

Europe between the wars; World War II; the Cold War; efforts to unify the continent.

23.350 England to 1660 (3 q.h., Group I)

The Anglo-Saxons; the Norman Conquest; the rise of monarchy; religious developments.

23.351 England since 1660 (3 q.h., Group II)

England since the Restoration of the Stuarts, with attention to the development of Parliament and democracy.

23.354 France since 1815 (3 q.h., Group II)

France after Napoleon, with attention to continuing attempts by the French people to find satisfactory political institutions.

23.355 Germany after 1815 (3 q.h., Group II)

An analysis of the role of nationalism in German life after 1815, with emphasis on unification, militarism, and imperialism.

23.356 Italy since 1815 (3 q.h., Group II)

The unification of Italy, the attempt to establish constitutional monarchy, the rise of fascism after World War I, and the movement toward democratic republicanism after World War II.

23.357 Ireland since 1800 (3 q.h., Group II)

A study of the Irish question in British politics from the Act of Union to the present.

23.360 American Indians (3 q.h., Group III)

A survey of native Americans from pre-Columbian times to the present.

23.361 Colonial America (3 q.h., Group III)

The exploration and settlement of North America; the development of political, social, and economic institutions; international rivalry to 1763.

23.363 The American Revolution (3 q.h., Group III)

British-American relations after 1763; war and peace.

23.364 American Constitutional History 1 (3 q.h., Group III)

The making of the Constitution; constitutional issues from 1789 to 1900, with emphasis on Federalism and government-economy matters.

23.365 American Constitutional History 2 (3 q.h., Group III)

The Constitution in the 20th century, with primary attention to the role of government in the economy and the protection of civil liberties and civil rights.

23.367 American Diplomatic History (3 q.h., Group III)

Selected topics in the history of American foreign relations and policy since 1789.

23.368 American Social History (3 q.h., Group III)

Selected topics in the life of the American people since 1789.

23.369 American Economic History (3 q.h., Group III)

Selected topics in the development of the capitalist economy in America, with attention to the role of government since 1789.

23.371 American Urban History (3 q.h., Group III)

The development of urban society in the United States since 1800.

23.372 Boston to 1822 (3 q.h., Group III)

The town of Boston from its establishment in 1630; the development of political, economic, and social institutions.

23.373 Boston since 1822 (3 q.h., Group III)

The city of Boston; annexations; changes in the ethnic nature of the people.

23.374 African-American History (3 q.h., Group III)

The history of African-Americans from colonial times to the present.

23.375 Populism and Progressivism (3 q.h., Group III)

A topical history of the United States from 1890 to 1920, concentrating on its reactions to industrialization and urbanization.

23.376 The United States, 1920–1945 (3 q.h., Group III)

A topical history of the United States in time of world war, prosperity, depression, and war again.

23.378 The United States since 1945 (3 q.h., Group III)

The American people from the close of World War II to the present.

23.379 History of Sport in America (3 q.h., Group III)
A history of the major sports and their impact on American life.

23.381 Latin America to 1900 (3 q.h., Group IV)
The fusing of Indian, Iberian, and black cultures in Latin America; the quest for independence; social and economic developments.

23.383 Contemporary Latin America (3 q.h., Group IV)
The social, economic, and political development of the Latin American republics in the 20th century.

23.384 The Far East to 1850 (3 q.h., Group IV)
The history of China and Japan prior to their opening by the West in the mid-19th century.

23.385 China since 1850 (3 q.h., Group IV)
A century of China's history, with emphasis on the western impact on Chinese civilization, China's struggle to maintain independence, and the victory of communism in the mid-20th century.

23.386 Japan since 1850 (3 q.h., Group IV)
An analysis of Japanese domestic developments and foreign relations since the mid-19th century.

23.388 Africa to 1885 (3 q.h., Group IV)
African prehistory; the evolution of African government and society; the dynamics of Afro-European contact before 1885.

23.389 Africa since 1885 (3 q.h., Group IV)
The European impact on Africa; the rise of African nationalism; the emergence of independent African states; their relations with other nations.

23.392 India and Pakistan (3 q.h., Group IV)
The religious and political history of the peoples who formed India and Pakistan, with an account of internal developments and foreign relations since independence.

23.393 Southeast Asia (3 q.h., Group IV)
The cultures of the peoples of Southeast Asia, with an examination of the impact of European nations upon them and an account of their quests for national identity and economic development.

23.394 Russia to 1917 (3 q.h., Group II)
The emergence of Russia as a recognized European power; the history of the Russian people and government to the revolutions of 1917.

23.396 Russia since 1917 (3 q.h., Group II)
The revolutions of 1917 and the subsequent history of the Russian people and government, with special emphasis on foreign relations.

23.397 Honors Program 1 (4 q.h.)
Prereq. Approval of the Dean.

23.398 Honors Program 2 (4 q.h.)
Prereq. 23.397.

23.399 Honors Program 3 (4 q.h.)
Prereq. 23.398.

23.400 Oral History (3 q.h., Group III)
Learning history from those who lived it. Students conduct tape-recorded interviews about a selected aspect of 20th-century history from first-hand experience. Students need access to audio tape recorders.

23.403 History of the Professions (3 q.h., Group III)
The evolution of the classic professions of law and medicine in the 19th century, and a study of the emergence of new professions such as engineering, nursing, accounting, and social work. Themes include professional-client, professional-employer, and professional-governmental relations as well as education, professional organizations, and sex stereotyping.

23.405 History of Criminal Justice in America (3 q.h., Group III)
The evolution of the criminal justice system in the United States, with special emphasis on the impact of English common law, the changing role of law enforcement officers, reform movements, the female offender, the black experience, and the changing meaning of law and order in the United States.

23.406 History of the Automobile (3 q.h., Group II or III)
The history of the automobile in Europe and America. Topics include invention, production, impact on social and economic life, and problems of pollution and energy.

23.407 Technological Transformation of Society (3 q.h., Group II, III, or IV)
The relationship between technological innovations and the world in which they take place. Discussion of conditions necessary for discovery and innovation. Impact of technology on political, economic, and social environment.

23.408 History of Energy (3 q.h., Group II or III)
The history of the methods by which human beings have mobilized the forces of nature to survive, to alter and improve their lifestyles, and to dominate their fellow human beings. Emphasis is placed on the points of transformation from one energy source to the available alternatives, and the reasons for the choices made. Topics include the change from manpower to animal and machine power, the energy crisis of the 16th century, and the transformation from wood to water and coal power, the rise of electricity and fossil fuels, the birth of the Atomic Age, and the contemporary history of the oil crisis.

23.409 Third World Women (3 q.h., Group IV)
An exploration of the role of women in the less developed third world areas, with special emphasis on factors of change, development, and continuity.

23.410 Family History (3 q.h., Group II or III)
The history of the family in Europe and America from 1600 to the present. Topics include the changing nature and role of the family, marriage and divorce, child-rearing, and aging.

23.411 Hitler's Germany (3 q.h., Group II)
A study of the origins and nature of Hitler's Third Reich, emphasizing the personal lives of Nazi leaders in an at-

tempt to understand how seemingly ordinary people could enthusiastically promote wars of aggression and revel in genocidal policies.

23.412 European Colonialism (3 q.h., Group II or IV)
The building of colonial empires by European nations after 1500, with attention to exploration and conquest, colonial administration, and the movements toward independence.

23.413 Russian Expansionism (3 q.h., Group II or IV)
Russia's quest for territory after 1500, with attention to the conquest of neighboring territories, the Sino-Russian disputes, and current issues in Soviet geopolitics.

23.414 American Expansionism (3 q.h., Group III)
A study of territorial expansion of the United States after independence, with attention to the forces leading to acquisition, the methods of acquiring property, and the consequences of expansionism.

23.491 Directed Study 1 (3 q.h.)
An opportunity for qualified students to take an upper-level course in their major area on an individual basis. Petitions and procedural instructions are available in the office of University College Social Science Programs, 204 Churchill Hall, 617-437-2416. *Prereq.* 87 q.h.

23.492 Directed Study 2 (3 q.h.)
An opportunity to initiate a second individual study as described above. *Prereq.* 23.491.

23.499 Field Work in History (6 q.h.)
Extra-collegiate experience in historical research or historical agencies. (Refer to page 65 for general description of field work courses). *Prereq.* Survey courses in World Civilization, American History, and The Historian's Craft.

25: Social Welfare (see page 134.)

26: Philosophy and Religion

Consultant: Prof. E. Hacker, Philosophy Dept. (College of Arts and Sciences)

26.301 Philosophy: Methods and Values (3 q.h.)
Introduces the student to the methods and values of thinking philosophically. The strategies of dialogue and of informational discovery are revealed through understanding and use of the Socratic method of intellectual exchange. In analyzing the universal quest for truth, the student begins to distinguish between knowing and not knowing, dogma and ignorance. Value issues are probed through questions in ethics and moral philosophy.

26.302 Philosophy of Knowing and Reality (3 q.h.)
Students probe distinct and relative issues to provide a basis for individual reflection about the difference between knowledge and belief. Areas of theoretical focus include the nature of ultimate reality, the nature of human knowledge, and the nature and existence of God. The investigation of a variety of problems and alternative solutions helps students to think independently and self critically.

Stress is given to the development of discipline and precision in communicating ideas.

26.303 Philosophy of Right and Justice (3 q.h.)
Focus is on ethics, social, and political philosophy. In ethics the two basic questions to be addressed are: *What sort of things are good or bad?*, and *What actions are right or wrong?* Social and political philosophy examines the theories of human nature, social change, social institutions, and major 20th century political theories. Additional topics such as aesthetics and philosophy of history may be discussed.

26.309 Major Thinkers of Our Time (3 q.h.)
A study of two or three philosophers, representative of which would be Austin, Ayer, Carnap, Dewey, Lewis, Maritain, Moore, Russell, or Whitehead. *Prereq.* 26.310 or equiv.

26.310 Introduction to Philosophy (Intensive) (9 q.h.)
Same as 26.301, 26.302, and 26.303.

26.314 The Human Search for Meaning (3 q.h.)
A philosophical study of the human struggle for meaning and identity. Some of the themes are: freedom and responsibility, alienation and anxiety, death and finitude.

26.315 Images of Man in Philosophy (3 q.h.)
A philosophical and literary study of the nature of man. What is human nature? What is a human being? Various philosophical answers have been given to these questions. These viewpoints will be examined with special attention to the significance of convention and tradition, social role, and freedom and decision.

26.320 The Great Eastern Religions (3 q.h.)
A study of the basic teachings of Taoism, Confucianism, Buddhism, Hinduism, and Shintoism.

26.321 The Great Western Religions (3 q.h.)
A study of the basic teachings of Judaism, Christianity, and Islam.

26.331 Ethics 1 (3 q.h.)
Analysis and criticism of moral argument. How to recognize areas of moral agreement and disagreement. Introduction to major moral viewpoints and their application to specific situations.

26.332 Ethics 2 (3 q.h.)
Problems and issues encountered in important areas of moral concern, such as euthanasia, punishment, and moral responsibility. Various approaches to these problems may be explained, as related to basic moral viewpoints. *Prereq.* 26.331.

26.333 Ethics 3 (3 q.h.)
Issues and viewpoints concerning human nature and its relevance to morality, leading to examination of such topics as victimless wrongs and the relation between morality and the law. *Prereq.* 26.332.

26.334 Introduction to Logic (3 q.h.)
The essentials of lucid thinking are explained in terms of basic logical concepts: deductive and inductive reason-

ing, valid and invalid arguments; the varied functions of language and definition. The student is given the opportunity to recognize and evaluate different kinds of arguments and methods of detecting and avoiding common errors in reasoning. The link between structured thought and effective communication is shown.

26.336 Business Ethics (3 q.h.)

Examination of ethical principles and considerations applicable to the moral decisions facing a businessperson. Basic general ethical viewpoints are studied as a foundation; the specific characteristics of business life are studied, and particular cases and examples analyzed.

26.337 Philosophy of Professionalism (3 q.h.)

A philosophic analysis of professionalism considered as an aspect of individual life and as an element of society. Examines the defining characteristics of a profession as well as the questions that arise from the nature of a profession, the typical attitudes toward the professions, and the ethical standards appropriate to the various professions.

26.344 Selected Topics in Philosophy 1 (3 q.h.)

Advanced course. Readings chosen jointly by students and instructor. Has included such topics as aggression, utopian literature, Marxism, and pragmatism.

26.345 Selected Topics in Philosophy 2 (3 q.h.)

Continuation of 26.344.

26.346 Selected Topics in Philosophy 3 (3 q.h.)

Continuation of 26.345.

26.351 The Existentialist Revolt (3 q.h.)

Sources of existentialism in the Western tradition, with emphasis upon Kierkegaard and Nietzsche.

26.352 The Existentialist Challenge (3 q.h.)

The existential view of man and his world, with emphasis upon Heidegger, Sartre, and the religious existentialists—Marcel, Tillich, and Buber. *Prereq.* 26.351.

26.353 Existentialism Appraised (3 q.h.)

Contemporary assessments of the existentialist movement, its meaning, significance, and truth. *Prereq.* 26.352.

26.360 Buddhism (3 q.h.)

The principle teachings of the Buddhists.

26.361 Hinduism (3 q.h.)

The major Hindu teachings.

26.362 Islam (3 q.h.)

The major principles of Islam.

26.363 Judaism (3 q.h.)

The elements of Judaism.

26.367 Mysticism: East and West (3 q.h.)

An exploration of mystical experiences through a discussion of some representative religious mystics.

26.371 Inductive Logic and Scientific Method (3 q.h.)

The study of inductive logic. Emphasis is on evaluation of generalizations, problems in "weighing the evidence" and common errors in inductive reasoning. Also studied are

Mill's methods of experimental inquiry and common errors in causal reasoning.

26.372 Introduction to Symbolic Logic (3 q.h.)

An introduction to the fundamentals of propositional logic. Toward the end of the quarter, the notation of the logic of quantifiers is introduced.

26.373 Philosophy of Religion (3 q.h.)

A study and evaluation of the arguments for the existence of God. Also studies natural and moral evil, the soul, immortality, the evidence for miracles, and the nature of religious knowledge.

26.374 Theistic, Atheistic, and Agnostic Philosophies (3 q.h.)

A comparative and evaluative study of selected theistic, atheistic, and agnostic philosophies. Some of the questions studied are: Is the belief in God necessary for a comprehensive philosophy of life? How does an atheistic philosophy explain and justify the "higher values" of man such as love, beauty, justice, etc? How is it possible to base a philosophy on the principle of agnosticism?

26.376 The Meaning of Death (3 q.h.)

Various philosophical and religious views concerning the meaning of death. Some of the questions discussed are: What attitude should one take regarding one's own death? What role does death play in our personal relations to others? Is a belief in an afterlife necessary in order to give meaning to this life?

26.377 Philosophy of Consciousness (3 q.h.)

An exploration of the theories of consciousness and the possibility of higher states of consciousness. Readings may include some of the psychological and parapsychological literature on the subject. Also explored will be some of the techniques (meditation, etc.) that are alleged to lead to higher states of consciousness.

26.378 Unorthodox Philosophies (3 q.h.)

A study of some current groups in Western culture whose philosophical and psychological teachings would be regarded as unorthodox by most experts in these areas. Some of these groups studied are: Scientology Society, International Meditation Society, Ouspensky-Gurdjieff Centers, etc.

26.381 Philosophy of Art (3 q.h.)

An investigation into the nature of art and the experience of beauty. The aesthetic theories of Plato, Aristotle, Tolstoy, Kant, Dewey, and others are critically compared. Also studied are the problems of artistic taste, standards of criticism, and the objectivity of artistic judgments.

26.382 Images of Woman in Philosophy (3 q.h.)

A philosophical approach to the study of woman in society. Drawing from the sources within the history of philosophy and literature, topics include: the role of women in society (ideal and actual), love and marriage, oppression and isolation, and the cult of virginity.

26.383 Philosophy of Education (3 q.h.)

A study of contrasting theories of education. Questions examined are: What should be the goal of education? Can and should cultural values be taught? What are the values of a liberal arts education in a technical society? What is an ideal curriculum for the accomplishment of a given educational goal?

26.384 Philosophy of Medicine (3 q.h.)

Social and moral problems created by medical science. Questions investigated are: Should a human life be prolonged under any condition and at any cost? What are the moral problems caused by the current medical definitions of death? Is it morally right to predetermine the physical characteristics of future generations by genetic engineering, etc.

26.385 Social Philosophy (3 q.h.)

Critical examination of the leading socio-political ideologies in regard to their conceptions of the character, structure, and function of society.

26.386 Political Philosophy: Right vs. Left (3 q.h.)

An examination of the political philosophies underlying conservatism, liberalism, and radicalism. Emphasis will be on contemporary political trends.

26.387 Dialectical Materialism: The Philosophy of Marxism (3 q.h.)

A study of the philosophical aspects of Marxism. Some attention will be given to Marx's view of society, history, economics, and ethics.

26.388 Philosophy of History (3 q.h.)

Emphasis will be given to the speculative philosophy of history, that is, the attempt to discover some general pattern in the history of mankind. Some of the philosophers studied are: Hegel, Marx, Spengler, and Toynbee.

26.389 Philosophy of Contemporary Social Criticism (3 q.h.)

A critical study of contemporary society and its institutions. Readings may include selections from the works of Paul Goodman, Lewis Mumford, and Eric Fromm.

26.390 Philosophy of the Social Sciences (3 q.h.)

An examination and evaluation of the methodologies of the social sciences: sociology, psychology, history, political science, and economics. Some of the issues examined are: prediction and explanation in the social sciences, a comparison of the methodologies of the social and physical sciences, experimentation and verification in the social sciences.

27: Fine Arts

Consultant: Prof. Samuel S. Bishop, Chairman, Art Dept. (College of Arts and Sciences)

*Title change only. Students who have taken this course under its former title should not enroll.

27.301 Introduction to the Arts (3 q.h.)

Introduction to the techniques and styles of various artistic expressions in painting, sculpture, drawing, architecture, and graphic arts.

27.304 History of Art* (formerly History of Art I) (3 q.h.)

History of Western art from prehistoric times to the end of the Roman Empire.

27.305 History of Art to the Sixteenth Century* (formerly History of Art II) (3 q.h.)

History of Western art from the end of the Roman Empire to the late 16th century.

27.306 History of Art to the Twentieth Century* (formerly History of Art III) (3 q.h.)

History of Western art from the late 16th century to the 20th century.

27.314 European Painting (3 q.h.)

Development of painting from the late 16th century to the middle of the 19th century in Northern and Western Europe.

27.315 Modern Painting* (formerly Modern Painting 1) (3 q.h.)

The development of painting from the late 19th century to the Surrealist movement.

27.316 Contemporary Painting* (formerly Modern Painting 2) (3 q.h.)

The various styles of painting from surrealism to contemporary art.

27.318 Twentieth-Century American Architecture (3 q.h.)

Study of architecture from Richardson to the present.

27.319 Twentieth-Century European Architecture (3 q.h.)

Study of architecture from Le Corbusier to the present.

27.320 Italian Renaissance Art (3 q.h.)

Study of painting and sculpture of the 15th and 16th centuries.

27.322 French Painting (3 q.h.)

Study of French painting of the 19th century.

27.324 American Art 1 (3 q.h.)

The development of American architecture, sculpture, and painting from Colonial times to the War of Independence.

27.325 American Art 2 (3 q.h.)

The development of American architecture, sculpture, and painting from the Revolution to the Civil War.

27.326 American Art 3 (3 q.h.)

The development of American architecture, sculpture, and painting from the Civil War to the present.

27.327 Basic Life Drawing* (formerly Life Drawing I) (3 q.h.)

Basic life drawing, involving anatomy and study of figure drawing.

27.328 Life Drawing* (formerly Life Drawing II) (3 q.h.)
Life drawing of the figure in various media. *Prereq.* 27.327.

27.329 Figure Composition* (formerly Life Drawing III) (3 q.h.)
Figure drawing and figure composition in various media. *Prereq.* 27.328.

27.330 Mixed Media 1 (3 q.h.)
Basics in mixed media such as oil float, brayer printing, wash resist, glue resist, sponge printing, monotype, brownline prints, and sand casting. Emphasis will be on individual experimentation.

27.331 Mixed Media 2 (3 q.h.)
Creative expression in mixed media and experimentation.

27.332 Mixed Media 3 (3 q.h.)
Creative expression in advanced mixed media.

27.336 Latin American Art (3 q.h.)
Pre-Columbian and post-Columbian art forms of Latin America, including architecture, sculpture, painting, and the decorative arts—excluding Mexico.

27.338 Chinese Painting (3 q.h.)
A history of the Chinese art of painting from its inception to the 20th century.

27.339 Japanese Art (3 q.h.)
The arts of painting, sculpture, and architecture in Japan.

27.340 Freehand Drawing (3 q.h.)
An elementary course in drawing. (*Does not fulfill drawing requirement for the studio art major.*)

27.341 Drawing* (formerly Drawing I) (3 q.h.)
Practice in the techniques and development of drawing in pencil, pen, and ink, with concentration on basic drawing problems.

27.342 Color Drawing* (formerly Drawing II) (3 q.h.)
Practice in the techniques of wash drawing, pastel, and mixed color medias.

27.343 Figure Drawing* (formerly Drawing III) (3 q.h.)
Study of human anatomy and introduction to figure drawing and composition.

27.344 Graphic Arts—Woodcutting (3 q.h.)
Creative expression in graphic art media such as woodcuts and other relief printing.

27.345 Graphic Arts—Silkscreen (3 q.h.)
Execution of prints in various media and the printing process of silkscreen.

27.346 Graphic Arts—Etching (3 q.h.)
Execution of intaglio printmaking with various graphic media.

27.348 Graphic Arts—Intermediate Level (3 q.h.)
An opportunity to experiment in creative printmaking by using various media. *Prereq.* 27.346 or permission of instructor.

27.351 Painting—Basic Level* (formerly Painting—Basic Level I) (3 q.h.)
Practice and creative expression in the technical fundamentals of figure and landscape painting.

27.352 Painting—Figure* (formerly Painting—Basic Level II) (3 q.h.)
Creative expression in advanced painting problems of figure study. *Prereq.* 27.351 or equiv.

27.353 Painting—Composition* (formerly Painting—Basic Level III) (3 q.h.)
Creative expression in advanced painting problems in composition. *Prereq.* 27.352 or equiv.

27.360 Oriental Indian Art (3 q.h.)
The national Indian styles of sculpture, painting, and architecture.

27.361 Basic Color and Design* (formerly Basic Color and Design I) (3 q.h.)
Study and practice of the principles of design and science of color.

27.362 Color and Design Practice* (formerly Basic Color and Design II) (3 q.h.)
Advanced study in the science of color.

27.363 Contemporary Design* (formerly Basic Color and Design III) (3 q.h.)
Advanced problems in design.

27.364 Color and Design* (formerly Advanced Color and Design) (3 q.h.)
Creative expression in various color and design problems.

27.365 Painting—Intermediate Level (3 q.h.)
Studio paintings, concentrating on the development of personal style and the execution of various painting problems. *Prereq.* 27.353 or permission of instructor.

27.371 Basic Commercial Design* (formerly Basic Commercial Design I) (3 q.h.)
Study and creative work in layout, illustration, advertising, and typography.

27.372 Commercial Design Practice* (formerly Basic Commercial Design II) (3 q.h.)
Commercial design techniques in various media.

27.373 Commercial Design Problems* (formerly Basic Commercial Design III) (3 q.h.)
Commercial design techniques in various media.

27.374 Advanced Commercial Design (3 q.h.)
Creative problems in illustration design.

27.380 Collagraph Printmaking (3 q.h.)
An in-depth study and execution of collagraph prints, including an introduction to the various creative techniques and the use of an etching press.

27.387 History of Photography* (formerly History of Photography I) (3 q.h.)
Early developments in photography from ancient times to the daguerreotype.

27.388 History of Photography to the 20th Century* (formerly History of Photography II) (3 q.h.)

Developments of modern photography from the work of Stieglitz to the present.

27.389 Contemporary Photography* (formerly History of Photography III) (3 q.h.)

Study of styles in contemporary photography, with emphasis on major modern photographs.

27.392 New York Art Seminar (3 q.h.)

Study and observation of the painting collections in the Metropolitan Museum of Art, Frick Collection, Museum of Modern Art, and the Guggenheim Museum.

27.394 European Art Seminar (3 q.h.)

A four-week study and travel seminar through major European art centers, with emphasis on the major works of art in each.

27.395 Directed Study 1 (3 q.h.)

An opportunity for qualified students to take an upper-level course in their major area on an individual basis. Petitions and procedural instructions are available in the Office of University College Humanities Programs, 203 Churchill Hall, 617-437-2423 *Prereq.* 87 q.h.

27.396 Directed Study 2 (3 q.h.)

An opportunity to initiate a second individual study as described above. *Prereq.* 27.395.

27.400 Honors Program 1 (4 q.h.)

Prereq. Approval of the Dean.

27.401 Honors Program 2 (4 q.h.)

Prereq. 27.400.

27.402 Honors Program 3 (4 q.h.)

Prereq. 27.401.

27.403 Mexican Art (3 q.h.)

Pre-Columbian art from the Archaic and Classical periods to the present.

27.405 Basic Watercolor Painting* (formerly Watercolor Painting I) (3 q.h.)

Practice and creative expression in the technical fundamentals of watercolor.

27.406 Watercolor Painting Practice* (formerly Watercolor Painting II) (3 q.h.)

Creative expression in various techniques of watercolor. *Prereq.* 27.405.

27.407 Techniques of Watercolor Painting* (formerly Watercolor Painting III) (3 q.h.)

Advanced expression in watercolor *Prereq.* 27.406.

27.408 The Arts in Boston (3 q.h.)

An examination of the arts in Boston, such as painting, sculpture, and architecture, and consisting of lectures, discussions, tours, and field trips.

27.410 American Indian Art* (formerly Native American Indian Art) (3 q.h.)

The art of the first settlers, the native people of the western hemisphere except Mexico, from the Paleolithic period to

the arrival of the Conquerors. Major works of painting, architecture, sculpture, and minor arts and crafts of the northern native people and Eskimos will be studied.

27.411 Art and Society* (formerly Art and Society I) (3 q.h.)

A topical examination of the art of the past and present, focusing on its social and cultural significance.

27.420 Graphic Communication and Production (3 q.h.)

Introduction to the wide range of graphics and technical illustration available and how to use them. Students learn effective techniques of integrating graphic and written communication, as well as pitfalls to avoid. An overview of the production process includes an introduction to lithography, screening, color techniques, composition, process camera, paper stocks, bindery methods, and economic factors.

28: Music

Consultant. Prof. R. L. Nadeau, Music Dept. (College of Arts and Sciences)

28.301 Introduction to Music (3 q.h.)

Introduction to selected works of our musical heritage from earliest times to contemporary styles. Primarily a survey and listening course, with emphasis on styles, basic theory, forms, and the historical, social, and artistic periods these works represent.

28.302 How to Read and Write Music (3 q.h.)

Introduction to the basics of musical notation for students with little or no theory or performance background. The use of the symbols of pitch and duration is the main focus of the course. Activities include sight reading simple melodies, following scores, arranging music for small instrumental groups, transposition, and elementary rhythmic and melodic composition.

28.303 Women in Music (3 q.h.)

A study in depth of the historical role of women in music; woman as composer, performer, patron, inspiration.

28.311 History of Musical Styles (3 q.h.)

A course for nonmusic majors. A survey of the historical trends in music from ancient times to the present. Men, ideas, and events that have influenced change in musical style will be highlighted. The student should gain a broad overview of musical literature and history which will enhance understanding and future concert attendance.

28.317 Music as a Means of Social Expression (3 q.h.)

Deals with the artist's involvement with the recurring social themes of man's view of himself, his search for brotherhood, his relation to minority groups, and his sexual relationships. Paintings and literary works are used, in addition to works by Beethoven, Schoenberg, Britten, and jazz composers.

28.321 The Symphony (3 q.h.)

A study of the symphony as the major genre in the classical, romantic, and contemporary periods. Works by

Haydn, Mozart, Beethoven, Schumann, Tchaikovsky, Brahms, Sibelius.

28.324 The World of Opera (3 q.h.)

Analysis of opera as a dramatic form. Aria, recitative, ensemble, and other basic elements of opera are isolated and discussed. Numbers Opera, Music Drama, and Sing-spiel are some of the types of opera considered. Composers whose works are analyzed include Mozart, Wagner, Verdi, and Puccini.

28.326 Jazz: Evolution and Essence (3 q.h.)

Jazz from its origins in New Orleans to the avant-garde experiments of today. The rhythmic, harmonic, instrumental, and stylistic characteristics of jazz are analyzed. Attention is given to the works of creative jazz artists such as Armstrong, Beiderbecke, Parker, Ellington, and Coltrane.

28.328 Ear Training 1 (3 q.h.)

Rhythmic articulation. Solmization studies in major keys; G and F clef. Conductor's beat patterns in simple meter. Rhythmic and melodic dictation in major keys. Interval studies.

28.329 Ear Training 2 (3 q.h.)

Continuation of 28.328. Solmization studies in major keys with chromatics, and in minor keys. G, F, and C clef. Conductor's beat patterns in simple and compound meter. Melodic dictation in major and minor keys. Harmonic dictation. Interval studies. *Prereq.* 28.328 or *equiv.*

28.330 Ear Training 3 (3 q.h.)

Continuation of 28.329. Advanced rhythmic, melodic, and harmonic dictation. Sight singing of one- and two-part melodies in major and minor keys, with chromatics. Modulation. Singing in four parts. Advanced interval studies. *Prereq.* 28.329 or *equiv.*

28.331 Life and Works of J. S. Bach (3 q.h.)

The genius who summed up the Baroque era. A study of the man whose every note reflected his profoundly humanistic approach to religion. Works include large choral masterpieces such as the *St. Matthew Passion*, the *Brandenburg Concertos*, the *Well Tempered Clavier*, and the *Suites*.

28.332 Life and Works of Mozart (3 q.h.)

A musical development from child prodigy to mature artist is traced from his own letters and from biographies. Many of his major works, including opera, symphonies, concertos, and chamber music, are analyzed in detail.

28.333 Life and Works of Beethoven (3 q.h.)

An analysis of the complex personality and art of this major figure. His relation to the turbulent times in which he lived; his role in classical and romantic music.

28.334 Pedagogy of Music 1 (3 q.h.)

Introduction to philosophy, principles, and procedures in the teaching of music.

28.335 Pedagogy of Music 2 (3 q.h.)

Procedures, program planning, and techniques in teaching vocal and instrumental music. *Prereq.* 28.334 or *consent of instructor prior to registration.*

28.336 Pedagogy of Music 3 (3 q.h.)

Methods, procedures, and materials of/or advanced vocal and instrumental music instruction. *Prereq.* 28.334, 28.335 or *consent of instructor prior to registration.*

28.337 Conducting I (Basic Conducting) (3 q.h.)

The student is given the opportunity to learn how to develop a clear beat technique; how to prepare, teach, and polish a work in rehearsal; is exposed to a basic repertoire and the basics of vocal/instrumental production. *Prereq.* A fundamental knowledge of music reading and concurrent membership in a performing ensemble.

28.342 Music U.S.A. (3 q.h.)

American music from Puritan psalm singing to the present time. Folk music of ethnic origin, concert music, ragtime, jazz, and contemporary styles are discussed.

28.343 Great Choral Literature (3 q.h.)

A study of sacred and secular choral literature from medieval to contemporary times.

28.351 Life and Works of Brahms (3 q.h.)

The Romantic-Classicalist; his technique of germinal motivic construction; a study of his symphonies, concertos, chamber music, the songs and the Requiem.

28.352 Life and Works of Chopin (3 q.h.)

A comprehensive study of the pianoforte compositions of Chopin, including the sonatas, concertos, and the shorter forms such as the waltzes, nocturnes, preludes, mazurkas, etudes, scherzos, polonaises, impromptus, and ballades.

28.354 European Music and Art (3 q.h.)

A comparative study of how the European composers used the works of art of Spanish, English, and German painters as inspiration for their individual musical scores. Analyzing many European museum paintings and their musical counterparts gives the student knowledge of the influence of the methods and works of art on the composition of these musicians.

28.357 Life and Works of the Strauss Family (3 q.h.)

Studies six members of the Strauss family. Compositions studied will be waltzes, polkas, marches, and the operetta *Die Fledermaus (The Bat)*. Cultural background in the Vienna of the 1800s will provide a broad setting for the appreciation of music.

28.358 Life and Works of Debussy (3 q.h.)

Claude Debussy, impressionist in sound, composed music that marked the turning point toward modern trends. Much of his music for piano, orchestra, and opera will be studied, including *Pour le Piano Suite*, *Suite Bergamasque (Clair de Lune)*, *Images* for piano and orchestra, *Nocturnes*, *La Mer* and the opera *Pelleas and Melisande*.

28.359 Life and Works of Verdi (3 q.h.)

The operas of Giuseppe Verdi, great composer of Italian opera, including such masterpieces as *Aida*, *Rigoletto*, *La Traviata*, *Il Trovatore*, *Othello*, and *Falstaff*.

28.360 Life and Operas of Giacomo Puccini (3 q.h.)

Tosca, *Madame Butterfly*, *La Bohème* are a few of the operas of the Italian master to be studied.

28.361 Music in Popular Culture (3 q.h.)

Investigates the attitude of American civilization toward culture, art, and beauty through a look at contemporary popular music. Compares the different styles of pop music (jazz, rock, MOR, R&B) and traces their evolution. Examines the manipulation of public tastes by large corporations for commercial purposes.

28.370 Music and Art of the Western World (3 q.h.)

Comparative study of the artists and composers of the New and Old Worlds.

28.371 Piano Class 1 (3 q.h.)

For beginning piano students. Each student progresses at his or her own pace, and grades are achieved by passing various step levels. Ownership of a piano is not a necessary requirement for taking this course.

28.372 Piano Class 2 (3 q.h.)

Introduces scales, arpeggios, and triads to help students perform more advanced music. The repertoire consists of original compositions by the instructor and simple works by Bartok and Kabalevsky. *Prereq.* 28.371 or *equiv. or consent of instructor*.

28.373 Piano Class 3 (3 q.h.)

Introduces two-octave scales, arpeggios, and triads in all keys. Repertoire consists of Bartok, Kabalevsky, original compositions by the instructor, and duets specifically arranged for this course. *Prereq.* 28.372 or *equiv. or consent of instructor*.

28.383 Music of the Dance (3 q.h.)

The world of the dance, with strong emphasis on the creative art of ballet. This course probes deeply into the dynamic qualities of music for the dance and the talented people in the field who successfully brought about its present position as a fusion of all the arts.

28.390 Directed Study (3 q.h.)

Independent work under the direction of the department upon a chosen topic. (*Limited to qualified students with approval of department chairman.*) *Prereq.* Dept. approval.

28.398 American Musical Theatre (3 q.h.)

A historical survey and analytic study of musical shows. Students will attend performances and write critical reviews.

28.399 Music Theory 1—Fundamentals (3 q.h.)

The basics of music theory: rhythmic and pitch notation in the treble and bass clefs, intervals, scales, melodic writing and analysis, and elementary chord construction.

28.400 Music Theory 2 (3 q.h.)

Continuation of Music Theory 1. Includes reading and writing in the soprano, alto, and tenor clefs; transposition, elementary arranging, writing cadences and simple chord progressions, and elementary musical analysis. *Prereq.* 28.399 or *equiv. or consent of instructor prior to registration*.

28.401 Music Theory 3 (3 q.h.)

Continuation of Music Theory 2. Includes elementary four-part writing, introduction to figured bass, score reading, and elementary harmonic analysis. Introduces seventh chords, nonharmonic tones, and modulation. *Prereq.* 28.400 or *equiv. or consent of instructor prior to registration*.

28.402 Music History to 1750* (formerly Music History I—Musical Literature to 1750) (3 q.h.)

A study of sacred and secular musical literature from the early Middle Ages through the Baroque. Listening to and discussing monophony, organum, music of the troubadours and trouveres; motets, masses, and secular music by Machaut, Dufay, Josquin, Palestrina, Byrd; Elizabethan music, both vocal and instrumental; early Italian opera; music of the German Protestants, culminating in the works of Bach and Handel, will give the student an evolutionary view of music history and style during this period.

28.403 Music History of the Classical Period* (formerly Music History 2—Music of the Classical Period) (3 q.h.)

A study of changing musical styles from Stamitz and the Mannheim School through the works of Haydn, Mozart, and early Beethoven.

28.404 Music History of the Romantic Era* (formerly Music History 3—Music of the Romantic Era) (3 q.h.)

Musical styles of the 19th century. The role of music and the musician in the changing social, economic, political, and cultural structure of Europe. Music by Beethoven, Schubert, Berlioz, Brahms, Verdi, and Wagner will be heard, discussed, and analyzed.

28.405 Music Theory 4 (3 q.h.)

Intermediate four-part writing and analysis, including use of triad inversions, seventh chords, nonharmonic tones, and simple modulation. Keyboard harmony. *Prereq.* 28.401, 28.330, and 28.373 or *consent of instructor*.

28.406 Music Theory 5 (3 q.h.)

Four-part writing, including secondary dominants, non-dominant seventh, ninth, 11th, and 13th chords; linear embellishment of harmony, harmonization of melody, and musical analysis. Keyboard harmony. *Prereq.* 28.405 or *equiv. or consent of the instructor prior to registration*.

28.407 Music Theory 6 (3 q.h.)

Four-part writing, including chromatic and other nondiatonic harmony and advanced modulation. Keyboard harmony. Introduction to modern chord symbols and basics of serial writing. Continuation of musical analysis. *Prereq.* 28.406 or *equiv. or consent of instructor prior to registration*.

28.410 Music History of the Twentieth Century* (formerly Music History 4—Music of the Twentieth Century) (3 q.h.)

The diversity of styles from Debussy through Stravinsky, Schoenberg, Bartok, Hindemith, and more recent developments, including musique concrete, chance music, and electronic music.

28.411 Musical Performance 1 (1 q.h.)

Participation in rehearsals and public performances and/or research, composition, arranging, conducting, solo and ensemble activity, etc., with the NU Symphony Orchestra, the Early Music Players, the NU Chorus, the NU Bands, or other ensembles under the supervision and coaching of a faculty member of the Department of Music. The student's progress will be evaluated at the end of the quarter by audition or otherwise. *Prereq.* Audition or permission of instructor.

28.412 Musical Performance 2 (1 q.h.)

Prereq. Audition or permission of instructor.

28.413 Musical Performance 3 (1 q.h.)

Prereq. Audition or permission of instructor.

28.414 Musical Performance 4 (1 q.h.)

Prereq. Audition or permission of instructor.

28.495 Honors Program 1 (4 q.h.)

Independent work in a selected musical area under the direction of members of the department. Limited to qualified students with the approval of the department chairman, and only by special arrangements with the supervising faculty member. *Prereq.* Permission of the Dean.

28.496 Honors Program 2 (4 q.h.)

Prereq. 28.495.

28.497 Honors Program 3 (4 q.h.)

Prereq. 28.496

29: Speech and Theatre Arts

Consultant. Prof. E. J. Blackman, Chairman, Drama and Speech Dept. (College of Arts and Sciences)

*Title change only. Students who have taken this course under its former title should not enroll.

29.301 Effective Speaking 1 (3 q.h.)

Focus on development of personal communication skills; shaping messages, sending messages; listening; understanding nonverbal cues; trusting and coping with the barriers to communication; feedback and interaction.

29.302 Effective Speaking 2 (3 q.h.)

The focus is on small-group communication, elements of group structure; task and maintenance functions by group members, leadership, formalized methods of group problem solving, and decision making.

29.303 Effective Speaking 3 (3 q.h.)

The study and application of public communication skills, both as disseminating information and as a catalyst for

change, message preparation; information exchange; delivery; persuasive techniques are emphasized.

29.304 Voice and Articulation 1 (3 q.h.)

Aimed at developing the speaking voice; special emphasis on articulation, pitch control, vocal variety, and flexibility; basic theory of the vocal mechanism.

29.305 Voice and Articulation 2 (3 q.h.)

Study of the science of speech sounds, investigation of regionalisms, individual voice development. *Prereq.* 29.304

29.306 Oral Interpretation (3 q.h.)

Application of basic vocal techniques to the dramatic interpretation of various forms of literature.

29.307 Business and Professional Speaking (3 q.h.)

Practice in the organization and presentation of material to fit varying audiences. Emphasis on techniques of delivery and effective presentation of ideas.

29.308 Argumentation and Discussion (3 q.h.)

Designed to acquaint the student with the basic concepts of argumentation (evidence, research, refutation). Emphasis is placed on the psychology of an audience and various types of group discussion.

29.309 Parliamentary Procedure (3 q.h.)

Methods of conducting and organizing meetings. Development of effective leadership techniques. Experience in chairing a meeting and applying rules of order.

29.310 Theatre Management (3 q.h.)

Surveys business problems of financing, promoting, programming for educational, community, and professional theatre. Visits by practicing professionals; practical application through class projects, working on actual productions. (A good course for those interested in business careers/arts management.)

29.311 Theatre Appreciation* (formerly Introduction to Theatre Arts) (3 q.h.)

Aimed at developing in theatregoers an appreciation of the total theatre experience, by studying the roles that the playwright uses to bring a script to life. Through the reading of selected plays, the student begins to understand the role of the director, the actors, and the designers. The plays are analyzed both from the viewpoint of the artist and the audience.

29.312 Theatre Experience (3 q.h.)

Through creative analysis of model plays and perhaps the attendance of one or two live performances, the theatre as a collaborative art form comes into focus. The link between practice and theory is shown by giving the student an understanding of the dynamics of acting, directing, designing, lighting, and the mandates of theatre economics. Cost of theatre tickets is not included in tuition. *Prereq.* 29.311 or permission of instructor.

29.315 Effective Speaking (Intensive) (6 q.h.)

Equivalent of 29.301 and 29.302. Effective Speaking 1 and 2.

29.316 Oral Collaboration (3 q.h.)

Development of interviewing skills as a data acquisition technique. Effective questioning techniques to probe for technical information. How to interact with consultants, in formal and informal settings, for maximum benefit, make oral presentations and establish credibility among professional peers; participate in meetings for maximum productivity and effective technical group interaction.

29.320 Prizewinning Plays (3 q.h.)

What makes a play win the Pulitzer Prize, a Tony Award, the Nobel Prize? An examination of selected plays and their productions, which have been the recipients of one or more of these prizes, provides some answers.

29.327 Interpersonal Communications 1 (3 q.h.)

Ways of becoming more aware of one's self and one's relation to others. An exploration of various options for communicating and increasing one's knowledge of the group process. (enrollment limited)

29.328 Interpersonal Communications 2 (3 q.h.)

A continuation of 29.327. *Prereq.* 29.327. (enrollment limited)

29.329 Interpersonal Communications 3 (3 q.h.)

A continuation of 29.328. *Prereq.* 29.328. (enrollment limited)

29.330 Female/Male Communication 1 (3 q.h.)

Analyzes the ways in which female/male relations are created, maintained, developed, or disintegrated through communications. The influence of family, friends, the media, and "significant others" in sustaining stereotypes for both sexes and the impact of such stereotyping on the self and effective communication. The use of verbal and nonverbal communications to understand the types of relationships between men and women, and how different male/female language styles and usage affect these relations.

29.331 Female/Male Communication 2 (3 q.h.)

Discusses interaction and transactional approaches to analyzing existing relations and their communication. Develops skills in diagnosing communication transactions and in developing strategies for successful or effective communication. The influence of supportive and defensive environments and the communication behaviors of each are examined and applied to strategies for improving relationships between males and females. *Prereq.* 29.330.

29.332 Female/Male Communication 3 (3 q.h.)

Problems and issues in male/female communication. Various settings (job or work environment, industry, health professions, education, family, legal) are used, and the problems and issues of male/female interactions through communication are examined. Issues and problems from participants' own experience, as well as case studies, are included. *Prereq.* 29.330, 29.331.

29.333 Self Concept and Communication (3 q.h.)

Designed to look at ways communication patterns are formed and work in our personal and professional lives.

Emphasis on how self concept affects communication. Using a combination of thinking, feeling, and doing, students can develop awareness of their attitudes and habits and explore alternative communication patterns.

29.338 Introduction Mime Workshop (3 q.h.)

In-depth introduction to mime: illusionary technique, silent acting and creating material for mime-theatre. Taught by members of *The Pocket Mime Theatre* company.

29.339 Advanced Mime Workshop (3 q.h.)

A production workshop. Focuses on creating solo and ensemble materials, and refining illusionary techniques. Class culminates in a public performance of material created by the students. Previous training with *The Pocket Mime Theatre*, or permission of the instructor. Taught by principal mime with the company. *Prereq.* 29.338 or permission of instructor.

29.341 Workshop for the Actor 1 (3 q.h.)

Physical preparation. Basic stage movement and deportment; the control of the stage voice; the analysis and establishment of characterization through observation and awareness of the body; improvisations and short scenes.

29.342 Workshop for the Actor 2 (3 q.h.)

Psychological preparation. The analysis and establishment of characterization through memory, emotion, imagination, and recall. Analysis of specific roles, the creation of a character analysis book, improvisations, and short scenes. *Prereq.* 29.341 or permission of instructor.

29.343 Workshop for the Actor 3 (3 q.h.)

Preparing and performing the role. The physical and psychological preparation of specific roles. Short classroom scenes; the presentation of a one-act play. *Prereq.* 29.342 or permission of instructor.

29.350 The Comic Theatre (3 q.h.)

An examination of the writing and the staging of works by Aristophanes, Moliere, Shaw, Neil Simon. The nature, the functions, the techniques of comic writing and comic performance.

29.361 Introduction to Announcing* (formerly Announcing I) (3 q.h.)

Includes microphone techniques, voice analysis and critique, delivery of commercials, public service announcements, and techniques of ad-libbing. Useful to those who may do public speaking using a public address sound system, or those considering broadcast announcing as a career.

29.362 Announcing Techniques* (formerly Announcing II) (3 q.h.)

Deals with the delivery of prepared as well as ad-lib materials so that the announcer may strengthen his or her spontaneous broadcast speech abilities.

29.363 Special Announcing Skills* (formerly Announcing III) (3 q.h.)

Deals with a variety of ad-lib program types in both radio and television to aid the announcer in developing the ability to think quickly and speak fluidly and dynamically.

29.364 Speaking Skills for International Students 1 (3 q.h.)

Beginning-level course designed for persons who have studied or are studying English presently. Instruction offered in pronunciation and intelligibility for formal and informal situations. Communication skills monitored through use of video and audio tape recordings and work in the language laboratory. Following diagnostic testing, students will participate in individualized, small and large group instructional situations. Placement tests will be given during the first week of class.

29.365 Speaking Skills for International Students 2 (3 q.h.)

Intermediate-level course designed for persons who have previously studied English, but who need to develop additional basic oral communication proficiency. Communication skills monitored through use of video tape and audio tape recordings and work in the language laboratory. Following diagnostic testing, students will participate in individualized, small and large group instructional situations. Placement tests will be given during the first week of class.

29.366 Speaking Skills for International Students 3 (3 q.h.)

Advanced-level course designed for students who have previously studied English and who can make themselves understood easily, but who have difficulty in purposeful oral communication. Task-oriented interaction, variety of two-person communication situations, and small group interactions. Progress monitored through use of video and audio tape recordings. Placement tests will be given during the first week of class.

29.380 The Creative Cinema (3 q.h.)

A seminar designed to give the student an opportunity to view and critique films and the work of their directors, performers, and other creative personnel. Cost of cinema tickets not included in tuition.

29.394 The Shakespeare Experience (3 q.h.)

A seminar designed to give the student the opportunity to view and critique live productions and/or motion picture and television versions of plays by William Shakespeare.

29.395 The Boston Theatre Scene (3 q.h.)

This is a learning experience that stays current with what's on stage in Boston during the period that the course is scheduled. Students have the opportunity to view and critique live performances presented in the area's major and "Off-Broadway" theatres. Cost of theatre tickets is not included in tuition.

29.396 New York Theatre Seminar (3 q.h.)

Aims at introducing the theatre arts to students by varied theatre-going experiences as well as formal class discussions, and studying the role of the New York stage in shaping contemporary American theatre.

30: English

Consultant: Prof. M.X. Lesser, English Dept. (College of Arts and Sciences)

*Title change only. Students who have taken this course under its former title should not enroll.

Courses required for Arts and Sciences majors are:

30.305, 30.306, 30.307, English 1, 2, 3,

Some students may be requested to register for Elements of Writing (30.304), or English for International Students (30.301 and/or 30.302), for additional help in writing.

A. Writing and Language**30.301 English for International Students 1** (noncredit)

An introduction to the grammar and rhetoric of English as a second language. Practice in listening, speaking, and writing, with selected readings and exercises for vocabulary and pronunciation.

30.302 English for International Students 2 (noncredit)

An intermediate course in English as a second language. Practice in preparing written and oral reports, including business and social letters. *Prereq.* 30.301 or equiv.

30.304 Elements of Writing (3 q.h.)

An intensive review of grammatical forms and structural patterns of current English. Practice in writing sentences, paragraphs, and short papers. Enrollment by referral only.

30.305 English 1 (3 q.h.)

A detailed examination of the modes of rhetoric, especially exposition and argument. Practice in writing short papers based upon readings of expository prose.

30.306 English 2 (3 q.h.)

A detailed examination of the modes of rhetoric, especially description and narration. Practice in writing short papers and a fully documented library paper based upon readings of fiction. *Prereq.* 30.305 or equiv.

30.307 English 3 (3 q.h.)

The development of techniques for understanding imaginative literature. Practice in writing short papers and a fully documented library paper based on readings of poetry and drama. *Prereq.* 30.306 or equiv.

30.308 Expository and Persuasive Writing 1* (formerly Expository Writing 1) (3 q.h.)

Designed to help students develop confidence and proficiency in writing. Through first drafts to revisions, weekly writing assignments concentrate on mastering the skills of subject focus, clarity of expression, controlled development and organization. Attention is paid to improving grammatical accuracy and sentence structure within the revision process. The concluding focus is on understanding expository writing as a reflection of logical thinking. *Prereq.* 30.305 or equiv.

30.309 Expository and Persuasive Writing 2* (formerly Expository Writing 2) (3 q.h.)

Focus is on developing precise and persuasive writing patterns through experimentation with various rhetorical

strategies. Using topics that are currently significant, students write extensively to gain fluency in adapting to different audiences. Students learn to write for persuasive effect and to use different writing models to gain practical control of material. *Prereq. 30.308 or equiv.*

30.310 Expository Communications* (formerly Expository Writing 3) (3 q.h.)

A workshop in expository prose, emphasizing the practical problems of the writer on the job in advertising, public relations, or publishing. Practice in designing and writing special projects. *Prereq. 30.309.*

30.311 Business Writing and Reports 1 (3 q.h.)

An introduction to the vocabulary and philosophy of business communications. Practice in the planning, writing, and analyzing of effective business letters and memoranda.

30.312 Business Writing and Reports 2 (3 q.h.)

Methods and principles of research and documentation of semi-technical analyses and business reports. Practice in organizing and writing complex forms of business communications. *Prereq. 30.311 or equiv.*

30.313 Business Writing and Reports (Intensive) (6 q.h.)

A combination of 30.311 and 30.312.

30.317 Creative Writing: Fiction (3 q.h.)

A course for beginning writers of short fiction. Practice in writing short stories in various forms; discussion and criticism of student work and selected texts.

30.318 Creative Writing: Poetry (3 q.h.)

A course for beginning writers of poetry. Practice in writing poems in various forms and modes; discussion and criticism of student work and selected texts.

30.319 Creative Writing Workshop (3 q.h.)

A course for the practiced writer of fiction or poetry. Discussion and criticism of student manuscripts. *Prereq. 30.317 or 30.318 or equiv.*

30.320 The English Language (3 q.h.)

Development of modern English from pre-Anglo-Saxon beginnings; effects of Roman, Scandinavian, and Norman invasions; dialect geography; evolutionary change, word formation, and borrowing.

30.321 Linguistics (3 q.h.)

Theories of the nature and origin of language; review of historical and comparative linguistics; prescriptive and descriptive grammars; structural and generative-transformational phonology, morphology, and syntax

30.322 Semantics (3 q.h.)

The relation between language and behavior, levels of abstraction in communication, habits of evaluation of linguistic phenomena, and the modification of such habits for human understanding and survival.

30.325 Advanced English for International Students (3 q.h.)

An advanced course in English as a second language. Practice in special forms of writing to broaden diction,

syntax, and organizational techniques. *Prereq. 30.302 or permission of instructor.*

B. Technical Writing

30.410 Technical Writing 1 (3 q.h.)

Introduces the history and principles of technical writing. Improves basic technical writing skills by providing practice in basic descriptive writing, writing definitions, and preparing outlines and abstracts. The course provides practice in improving research skills with a guided library research project in the field of technical writing. Considerable writing practice is provided.

30.411 Technical Writing 2 (3 q.h.)

Provides exposure and practice in various types of technical writing, including descriptions of objects, mechanisms, and processes. Develops a student's capability in preparing various types of reports, including progress reports, recommendations, and oral reports. Introduces the preparation of proposals and use of graphic aids in supporting the writing process. Considerable writing is provided. *Prereq. 30.410.*

30.412 Technical Writing (Intensive) (6 q.h.)

Equivalent to 30.410 and 30.411.

30.413 Technical and Scientific Editing (3 q.h.)

Designed to render an understanding of the basic editorial principles and the overall editing process. The principal focus is on editing for meaning, clarity, and consistency within the context of space considerations. The functional overview includes the process of working with authors and other professionals, the utilization of a variety of "house styles," and instruction in manuscript marking. Students learn how to keep their own style sheets and how to key headings. Learning is enhanced for students already skilled in spelling and grammar.

30.415 Proposal Writing (3 q.h.)

Provides a background in the preparation of proposals, including ability to analyze a request for proposal (or bid set). Introduces the various types of proposals generated by industry and provides an opportunity to prepare a proposal in a simulated situation, through role playing and participation on a proposal preparation team. Considerable analysis and writing practice is provided. *Prereq. 30.411 or permission of instructor.*

30.420 Hardware Technical Manual Writing 1 (3 q.h.)

Introduces individuals who are competent in appropriate technical fields to the theory and practice of documenting the installation, operation, theory, and maintenance of electronic instruments and systems for industrial, aerospace, military, and medical applications. *Prereq. 30.411 or permission of instructor.*

30.421 Hardware Technical Manual Writing 2 (3 q.h.)

A continuation of 30.420, with special attention to developing the skills appropriate to writing each of the sections normally comprising an electronic instrument operating manual. Includes problems in organizing a typical manual.

presentation of technical theory, maintenance procedures, test and adjustment procedures, and procedures for updating manuals as well as cataloging replaceable parts. *Prereq.* 30.420.

30.425 Computer Software Technical Writing 1 (3 q.h.)
A two-quarter course designed to introduce the tasks and problems unique to software technical writing. Major topics include: review of fundamental software concepts; role and importance of software documentation; component parts of software technical manual and their purposes; tutorial and reference functions of manuals; research tools for manual writing; and the writing process itself. *Prereq.* 30.410 and 49.311 or permission of instructor.

30.426 Computer Software Technical Writing 2 (3 q.h.)
A continuation of 30.425. *Prereq.* 30.425.

For a description of **93.650 The Technical Presentation** see the current Lincoln College *Bulletin*.

C. Literature

*Title change only. Students who have taken this course under its former title should not enroll.

30.324 Gothic Fiction (3 q.h.)

A study of horror literature and its concerns with the supernatural, the irrational, the nature of evil, and the landscape of dreams, including such novels as *Dracula*, *Dr. Jekyll and Mr. Hyde*, and *The Turn of the Screw*.

30.328 The Psychological Novel (3 q.h.)

A study of the mental and emotional processes affecting the form and style of such novels as *Crime and Punishment*, *The Metamorphosis*, and *The Stranger*.

30.329 Children's Literature (3 q.h.)

A study of the psychology of creation, the ways of the imagination, and the role of fantasy and play in such children's books as *Alice in Wonderland*, *The Wizard of Oz*, and *Charlotte's Web*.

30.331 The Ancient World (3 q.h.)

The Bible and the principal writers of Greece and Rome, including such writers as Homer, Sophocles, and Virgil.

30.332 The Middle Ages (3 q.h.)

The major works of literature between 500 A.D. and 1500 A.D., including *The Song of Roland*, *The Divine Comedy*, *The Decameron*, and *The Canterbury Tales*.

30.333 The Renaissance (3 q.h.)

The literary achievements of Renaissance Europe, including such writers as Machiavelli, Rabelais, Montaigne, and Cervantes.

30.334 Neoclassicism and Romanticism (3 q.h.)

A study of major writers from the Age of Reason to the Victorian Age, including such writers as Racine, Voltaire, Goethe, and Wordsworth.

30.335 Realism and Naturalism (3 q.h.)

The fiction and drama of the second half of the 19th century, including such writers as Flaubert, Dostoyevsky, Ibsen, and James.

30.336 The Modern World (3 q.h.)

The principal literary influences in the 20th century, including such writers as Eliot, Joyce, Mann, Kafka, Proust, and Camus.

30.338 Modern Irish Literature (3 q.h.)

Irish literature in English from 1885 to the present, including such writers as Yeats, Joyce, O'Casey, and Behan.

30.339 Irish Writers in America (3 q.h.)

A study of Irish themes and attitudes in the fiction and drama of 20th-century America, including such writers as O'Neill, Donleavy, Alfred, and McHale.

30.341 English Literature: To 1700* (formerly English Literature I) (3 q.h.)

A survey of English literature from its beginnings to 1700, including works by Chaucer, Spenser, Shakespeare, Donne, and Milton.

30.342 English Literature: To 1832* (formerly English Literature II) (3 q.h.)

A survey of English literature from the neoclassical to the romantic age, including works by Pope, Swift, Johnson, Blake, Wordsworth, and Keats.

30.343 English Literature: Victorians and Moderns* (formerly English Literature 3) (3 q.h.)

A survey of English literature from the Victorian Age to the present, including works by Browning, Arnold, Hardy, Yeats, and Eliot.

30.344 Colonial American Literature: Faith, Reason and Revolution* (formerly American Literature I) (3 q.h.)

A survey of American literature from the beginnings to the early 19th century, including works by Taylor, Edwards, Franklin, Cooper, and Poe.

30.345 American Romantics: Poe to Whitman* (formerly American Literature II) (3 q.h.)

A survey of the literature of the American Renaissance, including works by Emerson, Thoreau, Hawthorne, Melville, and Whitman.

30.346 American Literature: The Modern Temper* (formerly American Literature III) (3 q.h.)

A survey of American literature from the Civil War to the present, including the works of Dickinson, Twain, James, Fitzgerald, and Frost.

30.347 Science Fiction (3 q.h.)

The myths and rhetorical strategies of science fiction, including such novels as *Frankenstein*, *Childhood's End*, and *Stranger in a Strange Land*.

30.348 Images of Women in Literature (3 q.h.)

A descriptive and analytic study of the images of women and the archetypes underlying them in imaginative literature, including such writers as Homer, Austen, Ibsen, and Lawrence.

30.349 American Women Writers (formerly Images of Women in Literature II) (3 q.h.)

A study of representative women writers in America in the 19th and 20th centuries, including such poets as Dickinson and Plath and such novelists as Chopin and Cather.

30.350 British Women Writers 3 (3 q.h.)

Examines important historical and thematic connections in the work of British women writers of the last 200 years, including the novels of Jane Austen, George Eliot, Virginia Woolf, and Doris Lessing.

30.351 Chaucer and The Canterbury Tales* (formerly Chaucer I) (3 q.h.)

An introduction to Middle English, its language and literature, with special attention to the historical, philosophical, and moral framework of *The Canterbury Tales*.

30.354 Shakespeare: The Young Dramatist (formerly Shakespeare I) (3 q.h.)

The Elizabethan theatre, Shakespeare's England, and such pre-1600 plays as *The Comedy of Errors*, *The Merchant of Venice*, and *I Henry IV*.

30.355 Shakespeare: Comedies and Early Tragedies* (formerly Shakespeare: The Problem Plays) (3 q.h.)

The comedies at the turn of the century and the early tragedies, such as *Twelfth Night*, *Much Ado About Nothing*, and *Hamlet*.

30.356 Shakespeare: Later Tragedies and Romances* (formerly Shakespeare: The Last Plays) (3 q.h.)

The later tragedies and the romances, such as *Othello*, *King Lear*, *Macbeth*, and *The Tempest*.

30.357 The Seventeenth Century (3 q.h.)

The prose and poetry of the major writers from 1600 to 1660, including Bacon, Browne, Donne, Herbert, Webster, and Jonson.

30.358 The Eighteenth Century 1 (3 q.h.)

The major writers of the Restoration and the Augustan Age, including Dryden, Congreve, Addison, Steele, Pope, and Swift.

30.359 The Eighteenth Century 2 (3 q.h.)

The major writers of the later part of the century, including Johnson and Boswell, Goldsmith, Sheridan, Burns, and Blake.

30.361 Spenser and The Faerie Queene* (3 q.h.)

The work of the major nondramatic poet of the English Renaissance, including *The Shepheardes Calendar*, the sonnet cycle, and *The Faerie Queene*.

30.362 Milton and Paradise Lost* (formerly Milton I) (3 q.h.)

A study of Milton's poetry and prose, including *Lycidas*, *Aeropagitica*, and *Paradise Lost*.

30.371 The Nineteenth Century 1 (3 q.h.)

English Romanticism from 1798 to 1832, including the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats.

30.372 The Nineteenth Century 2 (3 q.h.)

The prose, poetry, and drama of the Victorian Age, including such writers as Carlyle, Ruskin, Tennyson, Browning, Wilde, and Shaw.

30.373 The Twentieth Century (3 q.h.)

The major writers of the modern period, including such writers as Yeats, Eliot, Joyce, Lawrence, Auden, and Thomas.

30.374 The Eighteenth-Century English Novel (3 q.h.)

The development of the English novel and the characteristic quality of 18th-century fiction, including such writers as Defoe, Richardson, Fielding, Sterne, and Austen.

30.375 The Nineteenth-Century English Novel (3 q.h.)

The fiction of manners and morals in Victorian England, including such writers as Brontë, Dickens, Eliot, Thackeray, and Hardy.

30.376 The Twentieth-Century English Novel (3 q.h.)

The techniques and variety of modern English fiction, including such writers as Conrad, Foster, Joyce, Lawrence, Snow, and Murdoch.

30.380 Ethnic Literature in America (3 q.h.)

Explores the range, variety, and themes of ethnic literature in America in the work of such writers as Nelson Algren, James I. Farrell, Mario Puzo, Philip Roth, and William S. Stryker.

30.381 The American Short Story (3 q.h.)

The development of the American short story from its 19th-century origins to its present experiments, including such writers as Poe, Hawthorne, James, Hemingway, Roth, and Updike.

30.382 The Nineteenth-Century American Novel (3 q.h.)

The themes, forms, and techniques of the novel in 19th-century America, including such writers as Cooper, Melville, James, Twain, Howells, and Crane.

30.383 The Twentieth-Century American Novel (3 q.h.)

The themes, forms, and techniques of the novel in 20th-century America, including such writers as Dreiser, Lewis, Fitzgerald, Faulkner, Ellison, and Bellow.

30.384 Contemporary American Poetry (3 q.h.)

A study of the structure and themes of poetry in post-1945 America, including such writers as Ginsberg, Plath, Snodgrass, and Wilbur.

30.385 The Contemporary Novel (formerly The Modern European Novel) (3 q.h.)

A study of the structure and themes of post-1945 American, British, and European novels by such writers as Barth, Hawkes, Lessing, Powell, Grass, and Solzhenitsyn.

30.387 Contemporary English Poetry (3 q.h.)

A study of the structure and themes of poetry in post-1945 England, including the work of Gunn, Hughes, Larkin, and Levertov.

30.388 Outside the Mainstream: The Literature of America's Subcultures (3 q.h.)

A study of literature that reflects the specific interests, values, and concerns of America's diverse subcultural populations, including such works as *Black Elk Speaks*,

City of Night, *Woman Warrior*, and the stories of Isaac Bashevis Singer.

30.389 Modern American Voices: The New Essayists (3 q.h.)

Examines selected major nonfiction of the 1960s and 70s, stressing the fresh styles and often disturbing cultural perspectives of such works as Norman Mailer's *The Armies of the Night*, Robert Persig's *Zen and the Art of Motorcycle Maintenance*, Annie Dillard's *Pilgrim at Tinker Creek*, and Brautigan's *Trout Fishing in America*, as well as shorter work in the "new journalism" and personal essay by writers like Joan Didion, Tom Wolfe, Susan Sontag, and Woody Allen.

30.391 Honors Program 1 (4 q.h.) See p. 64.

30.392 Honors Program 2 (4 q.h.)

Prereq. 30.391.

30.393 Honors Program 3 (4 q.h.)

Prereq. 30.392.

30.395 Directed Study 1 (3 q.h.)

An opportunity for qualified students to take an upper-level course in their major area on an individual basis. Petitions and procedural instructions are available in the Office of University College Humanities Programs, 203 Churchill Hall, 617-437-2423. *Prereq.* 87 q.h.

30.396 Directed Study 2 (3 q.h.)

An opportunity to initiate a second individual study as described above. *Prereq.* 30.395.

31–34: Modern Languages

Consultant: Prof. Holbrook Robinson, Chairman, Modern Language Dept. (College of Arts and Sciences)

31: French

31.401 Elementary French 1 (4 q.h.)

Essentials of grammar, practice in pronunciation, and progressive acquisition of a basic vocabulary and idiomatic expressions.

31.402 Elementary French 2 (4 q.h.)

Continuation of grammar study. Oral and written exercises. *Prereq.* 31.401 or *equiv.*

31.403 Elementary French 3 (4 q.h.)

Reading of French prose of increasing difficulty, with written and oral exercises based on the materials read; practice in conversation. *Prereq.* 31.402 or *equiv.*

31.404 Intermediate French 1 (4 q.h.)

A review of grammar, with practice in composition and conversation. *Prereq.* 31.403 or *equiv.*

31.405 Intermediate French 2 (4 q.h.)

History of French civilization, with discussions and conversation. *Prereq.* 31.404 or *equiv.*

31.406 Intermediate French 3 (4 q.h.)

Intensive reading of modern French prose, with conversational practice. *Prereq.* 31.405 or *equiv.*

31.421 French Literature 1 (3 q.h.)

Origins of French literature, with readings from major works of the Middle Ages. *Prereq.* 31.406 or *equiv.*

31.422 French Literature 2 (3 q.h.)

Selections from the Classical period in the 17th and 18th centuries. *Prereq.* 31.421 or *equiv.*

31.423 French Literature 3 (3 q.h.)

Readings from major works of the 19th and 20th centuries. *Prereq.* 31.422 or *equiv.*

32: Spanish

*Title change only. Students who have taken this course under its former title should not enroll.

32.401 Beginning Conversational Spanish 1* (formerly Elementary Spanish I) (4 q.h.)

Stresses the acquisition of basic oral skills by introducing the essentials of Spanish grammar with extensive practice in pronunciation and acquisition of an idiomatic core vocabulary.

32.402 Beginning Conversational Spanish 2* (formerly Elementary Spanish II) (4 q.h.)

Continuation of Beginning Conversational Spanish 1, with introduction of Spanish prose of moderate difficulty. *Prereq.* 32.401 or *equiv.*

32.403 Beginning Conversational Spanish 3* (formerly Elementary Spanish III) (4 q.h.)

Continuation of 32.401 and 32.402. Continued stress on conversation, while building a solid core of basic Spanish. *Prereq.* 32.402 or *equiv.*

32.404 Intermediate Spanish 1 (4 q.h.)

Review of grammar, with practice in composition and conversation. *Prereq.* 32.403 or *equiv.*

32.405 Intermediate Spanish 2 (4 q.h.)

Spanish civilization through texts of average difficulty. Intensive reading of modern prose, with occasional oral or written translation; conversation practice based on assigned readings. *Prereq.* 32.404 or *equiv.*

32.406 Intermediate Spanish 3 (4 q.h.)

Spanish-American civilization through texts of average difficulty. Intensive reading of modern prose, with occasional oral or written translation; conversation practice based on assigned readings. *Prereq.* 32.405 or *equiv.*

32.413 Spanish Composition and Conversation 1 (4 q.h.)

Practice in writing and speaking Spanish, including writing and oral resumes, prepared speeches and themes, impromptu writing and speaking. A review of the more subtle problems of grammar. Designed for advanced nonnative speakers or for native speakers who wishes to perfect their idiom. *Prereq.* 32.406 or *equiv.*

32.414 Spanish Composition and Conversation 2 (4 q.h.)

A continuation of 32.413. *Prereq.* 32.413 or *equiv.*

32.415 Spanish Composition and Conversation 3 (4 q.h.)

A continuation of 32.414. *Prereq.* 32.414 or *equiv.*

32.420 Conversational Spanish for the Law Enforcement Professional (4 q.h.)

Intended for the law enforcement officer who is now, or will soon be, working in the Hispanic community. The course will cover basic Spanish needed for interviewing a suspect, obtaining personal descriptions, reporting a traffic accident, giving directions, receiving communications about robbery, fire, missing persons, and other situations common to police work. Elementary points of Spanish grammar will be presented.

32.425 Spanish: The Generation of '98. The Great Flowering of Modern Spanish Letters (4 q.h.)

At the turn of the century, Spain passed through a crisis of national conscience. As the stature of Spain diminished, great writers of the day began to question their country's values. The result was a new literary flowering, a second Golden Age of Spanish literature. The course will examine this literary renaissance by presenting the works of Unamuno, Machado, Valle Inclán, Baroja, Azorín, Ortega y Gasset, Pérez de Ayala. *Prereq.* 4 years of Spanish or *equiv.*

33: German**33.401 Elementary German 1** (4 q.h.)

Essentials of grammar; practice in pronunciation; progressive acquisition of a basic vocabulary and idiomatic expressions.

33.402 Elementary German 2 (4 q.h.)

More difficult points of grammar—particularly uses of subjunctive mood. *Prereq.* 33.401 or *equiv.*

33.403 Elementary German 3 (4 q.h.)

Reading of simple German prose, with oral and written exercises based on material read; German conversation encouraged. *Prereq.* 33.402 or *equiv.*

33.404 Intermediate German 1 (4 q.h.)

A review of grammar, with practice in composition and conversation. *Prereq.* 33.403 or *equiv.*

33.405 Intermediate German 2 (4 q.h.)

History of German civilization, with discussions and conversation. *Prereq.* 33.404 or *equiv.*

33.406 Intermediate German 3 (4 q.h.)

Intensive reading of modern German prose, with conversational practice. *Prereq.* 33.405 or *equiv.*

34: Japanese**34.421 Elementary Japanese 1** (4 q.h.)

Designed specifically as an introduction to basic, practical Japanese, the course stresses the essentials of grammar, pronunciation, progressive acquisition of a core vocabulary and idiomatic, current expressions.

34.422 Elementary Japanese 2 (4 q.h.)

Continuation of 34.421. Progressive acquisition of practical skills. *Prereq.* 34.421 or *equiv.*

34.423 Elementary Japanese 3 (4 q.h.)

Continuation of 34.422. *Prereq.* 34.422 or *equiv.*

35: Italian**35.431 Elementary Italian 1** (4 q.h.)

Essentials of grammar; practice in pronunciation; and progressive acquisition of a basic vocabulary and idiomatic expressions.

35.432 Elementary Italian 2 (4 q.h.)

Continuation of grammar study. Oral and written exercises. *Prereq.* 35.431 or *equiv.*

35.433 Elementary Italian 3 (4 q.h.)

Reading of Italian prose of increasing difficulty, with written and oral exercises based on the material read; practice in conversation. *Prereq.* 35.432 or *equiv.*

35.434 Intermediate Italian 1 (4 q.h.)

A review of grammar, with practice in composition and conversation. *Prereq.* 35.433 or *equiv.*

35.435 Intermediate Italian 2 (4 q.h.)

History of Italian civilization, with discussions and conversation. *Prereq.* 35.434 or *equiv.*

35.436 Intermediate Italian 3 (4 q.h.)

Intensive reading of modern Italian prose, with conversational practice. *Prereq.* 35.435 or *equiv.*

36: Arabic**36.301 Elementary Arabic 1** (4 q.h.)

An introduction to Arabic and related aspects of Arabic culture through oral comprehension, speaking, reading, and some writing of the language.

36.302 Elementary Arabic 2 (4 q.h.)

Continuation of basic language study, with practice in elementary conversation, reading, and writing. *Prereq.* 36.301 or *equiv.*

36.303 Elementary Arabic 3 (4 q.h.)

Continuation of 36.302, building the basic skills necessary to perform in the language at an elementary level. *Prereq.* 36.302 or *equiv.*

38: Journalism: Public Relations and the Mass Media

Consultant: Prof. G. A. Speers, Chairman, Journalism Dept. (College of Arts and Sciences)

*Title change only. Students who have taken this course under its former title should not enroll.

38.304 Fundamentals of Newswriting* (formerly Newswriting I) (3 q.h.)

Obtaining and organizing facts; the writing of basic news stories. Subjects covered may include the five "W's" and the "H" of news, inverted pyramid form, news values, and leads.

38.305 Newsgathering and Reporting* (formerly News-writing II) (3 q.h.)

Analysis of different types of news stories through assignments and class discussions; building news stories; news interview stories, and other types. *Prereq.* 38.304 or equiv.

38.306 Reporting the News* (formerly Newswriting III) (3 q.h.)

Investigative reporting, feature stories, editorials. Copy-editing exercises and assignments in specialized writing. Libel, slander, and other legal matters affecting journalism. *Prereq.* 38.305 or equiv.

38.320 Photo Journalism (3 q.h.)

Covers the basics of how to tell a story with a camera. Elementary darkroom procedures are covered, including cropping, assignment techniques, classroom theory, and photo caption methods. Class size is limited. (\$15 Laboratory fee)

38.325 Advertising Basics: From A to Z (formerly Fundamentals of Newspaper Advertising) (3 q.h.)

An intensive approach to the acquisition of advertising competencies, involving basic skills in copywriting, sales, layout; techniques of cooperative advertising, budgeting, scheduling, production procedures, promotion, and special events.

38.330 Mass Media and PR (3 q.h.)

Survey of communication and publicity techniques for the mass media; analysis of press releases; policies concerning media relationships; writing good press releases.

38.331 PR Practices and Production (3 q.h.)

Specific practices and techniques employed in public relations, especially in relation to information handling and organization of activities and events; how to define PR "targets"; analysis of dealing with publics such as employees, stockholders, consumers.

38.332 PR Problems and Practices (3 q.h.)

Research and communication techniques used to solve public relations problems; practical experience with individual PR projects; programs, and campaigns.

39: Economics

Consultant: Prof. M. A. Horowitz, Chairman, Economics Dept. (College of Arts and Sciences)

Associate Consultant: Prof. H. Goldstein, Executive Officer, Economics (College of Arts and Sciences)

39.301 Economic Principles and Problems 1 (3 q.h.)

Development of macroeconomic analysis; review of national income concepts; national income determination, fluctuation, and growth; role of the banking system and the Federal Reserve System; government expenditures and taxation; international trade; balance of international payments.

39.302 Economic Principles and Problems 2 (3 q.h.)

The role of a market pricing system, demand and supply in determining the allocation of resources to competing uses and why this system may not function adequately in

certain areas. Application of economic principles to private and public problems in such areas as pollution, poverty, and racial discrimination. *Prereq.* 39.301 or equiv.

39.303 Economic Principles and Problems 3 (3 q.h.)

Applications of economic principles to selected problem areas: poverty, competition, labor, agriculture, urban. *Prereq.* 39.302 or equiv.

39.304 Economics (Intensive) (9 q.h.)

Combination of Economic Principles and Problems I, II, and III. (*Not open to students who have taken 39.301, 39.302, 39.303.*)

39.307 Intermediate Economic Theory 1 (3 q.h.)

A detailed study of supply and demand analysis, various elasticity concepts and applications, theory of consumer demand, theory of production, and derivation of cost curves. Detailed analysis of pricing and output behavior in the several market structures with their welfare implication; the pricing of resources. *Prereq.* 39.303 or equiv.

39.308 Intermediate Economic Theory 2 (3 q.h.)

Investigation of the conceptual and empirical problems of creating and using national accounts; price index problems, conceptual and empirical evaluation of several consumption and investment functions, and their policy implications; multiplier and accelerator models; a brief history of recent cyclical fluctuations. Analysis of inflation and growth theories in the light of recent economic history. *Prereq.* 39.307 or equiv.

39.309 Intermediate Economic Theory 3 (3 q.h.)

Continuation of 39.307 and 39.308. Introduction to mathematical analysis and comprehensive analysis of theory of distribution. *Prereq.* 39.308 or equiv.

39.311 Statistics 1 (3 q.h.)

Introduction to the collection and organization of data. Concentration on the nature, computation, and uses of measures of central tendency and variability.

39.312 Statistics 2 (3 q.h.)

Introduction to statistical inference, parameters of samples, tests of significance, "t" distribution, and chi square. *Prereq.* 39.311 or equiv.

39.313 Statistics 3 (3 q.h.)

Introduction to the analysis of variance, trend fitting, linear regression, seasonal adjustment, and index numbers. *Prereq.* 39.312 or equiv.

39.314 Statistics (Intensive) (9 q.h.)

Introduction to the collection and organization of data. Concentration on the nature, computation, and uses of measures of central tendency and variability. Introduction to statistical inference, parameters of samples, tests of significance, "t" distribution, and chi square. Introduction to the analysis of variance, trend fitting, linear regression, seasonal adjustment, and index numbers. (*Not open to students who have taken 39.311, 39.312, 39.313.*)

39.317 Money and Banking 1 (3 q.h.)

Introduction to money and credit, commercial banking structure, and money creation; problems and policy of

central banking in the United States. *Prereq.* 39.303 or *equiv.*

39.318 Money and Banking 2 (3 q.h.)

Theory of money and prices and monetary policy; interest theory, debt management, and international monetary problems and analysis. *Prereq.* 39.317 or *equiv.*

39.319 Government Finance (formerly Public Finance) (3 q.h.)

Fiscal functions, institutions, and politics; growth of the public sector; expenditure planning in theory and practice; cost-benefit analysis; principles of taxation and tax incidence; major taxes at Federal and state-local levels; fiscal policy for high employment, price stability, and growth; current fiscal problems such as tax reform, urban fiscal problems, fiscal federalism, and income maintenance programs. *Prereq.* 39.318 or *equiv.*

39.321 Economic Growth and Development 1 (3 q.h.)

Analysis of the development of the Western market system. Introduction to economic growth and alternative approaches to economic development.

39.322 Economic Growth and Development 2 (3 q.h.)

An introductory analysis of economic factors and institutions, as well as an examination of the effect of psychological, social, and political influences upon economic development.

39.323 Government and Business 1 (3 q.h.)

Role of government in national economic affairs— theory and practice.

39.324 Government and Business 2 (3 q.h.)

The relationship between government and business and anti-trust laws.

39.325 American Economic History (3 q.h.)

Economic development of the United States, with emphasis upon the post-Civil War period and selected European developments.

39.326 Government and Business 3 (3 q.h.)

Application of anti-trust laws to business—emphasis on cases, principles, and current anti-trust problems.

39.327 Labor Economics (3 q.h.)

Development of labor organizations, their aims and methods. Issues in collective bargaining and public policy toward labor. *Prereq.* 39.303 or *equiv.*

39.328 International Economics 1 (3 q.h.)

Economics of international trade, tariffs and resource use, and balance of payments mechanisms. *Prereq.* 39.303 or *equiv.*

39.329 International Economics 2 (3 q.h.)

International commercial policy, financial organizations, and recent problems. *Prereq.* 39.328 or *equiv.*

39.330 Comparative Economic Systems (3 q.h.)

Competing types of theoretical economic systems; analysis of organization and operation of currently existing types of communist, socialist, and capitalist economies;

comparison and evaluation of economic behavior and performance of different economic systems.

39.331 Business Cycles 1 (3 q.h.)

Intermediate macroeconomic theory. Theory of cyclical fluctuations in the context of multiplier and accelerator models. *Prereq.* 39.303 or *equiv.*

39.332 Business Cycles 2 (3 q.h.)

Business cycle analysis, measurement, and public policy. *Prereq.* 39.331 or *equiv.*

39.333 Business Cycles 3 (3 q.h.)

Business cycle forecasting methods and services. *Prereq.* 39.332 or *equiv.*

39.334 Business Cycles (Intensive) (9 q.h.)

Combination of 39.331, 39.332, 39.333.

39.336 Advanced Statistics 1 (3 q.h.)

Advanced topics in sampling statistical inference as a management aid. *Prereq.* 39.303, 39.313 or *equiv.*

39.337 Advanced Statistics 2 (3 q.h.)

Elements in probability theory and the decomposition of economic change into secular, seasonal, and cyclical variation. *Prereq.* 39.336 or *equiv.*

39.338 Advanced Statistics 3 (3 q.h.)

Advanced topics in statistical inference, regression, and correlation and index numbers. *Prereq.* 39.337 or *equiv.*

39.339 Managerial Economics (3 q.h.)

An application of the theory of demand, price, and output to the business firm and capital budgeting. *Prereq.* 39.303 or *equiv.*

39.341 Medical Economics (3 q.h.)

Examination and discussion of the following topics: health care trends in the United States; causes for increases in medical care costs; supply and training of health care personnel; the nation's need for physicians, nurses, pharmacists, and other allied health personnel; the quality of medical care; economics of health insurance plans; consumer demand for health care, medical facilities, professional personnel, and semiprofessional personnel.

39.342 Economics of Crime (3 q.h.)

Theoretical and empirical analysis of the economic causes of criminal behavior will be presented. The social costs of crime and its prevention will be covered, and techniques for designing optimum law enforcement policies will be developed.

39.343 Poverty and Discrimination (3 q.h.)

Analysis of trend and composition of poverty in America. Examination of labor market, demographic and institutional forces contributing to poverty; role of education; economics of race and sex discrimination; public welfare system and proposed reforms.

39.351 Industrial Organization and Public Policy (3 q.h.)

The theoretical framework for analysis and evaluation of the static and dynamic performance of real markets. An

examination of the empirical studies testing the usefulness of applying theory to real markets. An examination of antitrust as a public policy designed to promote better market performance. *Prereq.* 39.303 or *equiv.*

39.352 Economics of World Energy and Primary Resources (3 q.h.)

Investigates economic, political, and historical backgrounds of the energy and other resource problems. Future impact of primary resource limitations on U.S. and world economies will be analyzed. Feasibility studies of resource substitution.

39.353 Superpower Economics (3 q.h.)

Analyzes the relative economic structure and strength of the U.S., U.S.S.R., Japan, and the Common Market and China, as well as the economic relations among these powers. Also may examine the impact of these relations on the domestic economies of the superpowers and of the developing nations of the world.

39.354 Economics of Urban Transportation (3 q.h.)

Transportation and land-use patterns; externalities; social costs and social benefits of various modes of urban transportation; ownership, regulations, and financing of various modes of transportation; economies of new technology in urban transportation.

39.355 Economics of the Quality of Urban Environment and Control (3 q.h.)

Economic analysis of air, water, thermal, and noise pollution; the utilization of urban space and other urban resources, identification of possible economic effects of urban environment, such as crime, delinquency, immobility, and congestion.

39.357 Manpower and Anti-Poverty Policies and Programs (3 q.h.)

Assessment of government and private efforts to fight poverty and improve the labor market position of impoverished groups; relationship between causes of poverty and discrimination; and possible remedies. Manpower training programs, negative income tax, family allowances, and other income maintenance schemes.

39.361 Urban Economics (3 q.h.)

An inquiry into the causes of the location and the growth of urban centers; economic analysis of selected urban problems, such as housing, transportation, land use, and public services. Exploration of public policies related to such problems.

39.381 Economic Policy Seminar (3 q.h.)

Capstone course for senior majors with stress upon independent study and contemporary issues. *Prereq.* 39.309, 39.331 or *equiv.*

39.391 Honors Program 1 (4 q.h.)

Prereq. Approval of the Dean.

39.392 Honors Program 2 (4 q.h.)

Prereq. 39.391.

39.393 Honors Program 3 (4 q.h.)

Prereq. 39.392.

39.491 Directed Study 1 (3 q.h.)

An opportunity for qualified students to take an upper-level course in their major area on an individual basis. Petitions and procedural instructions are available in the office of University College Social Science Programs, 204 Churchill Hall, 617-437-2416. *Prereq.* 87 q.h.

39.492 Directed Study 2 (3 q.h.)

An opportunity to initiate a second individual study as described above. *Prereq.* 39.491.

40: Library Science

Consultant: Mr. Frank Seeger, Boston College

40.301 Introduction to Library Science (3 q.h.)

Brief survey of the history of books and librarianship. The development of libraries in the United States, with some emphasis on recent Federal and state library legislation. The library profession, its philosophy, publications, and organizations.

40.302 Selection of Library Materials (3 q.h.)

Principles and practices in the selection of materials for the modern library; bibliographic aids to selection; practice in preparation of book notes and book reviews.

40.310 Critical Research Tools (3 q.h.)

How to start on a research project. Develops academic competence and efficiency via the mastery of basic reference materials. Covers the use of a wide variety of research tools to make the most effective use of available study time and to improve academic performance. How to get the most out of dictionaries, encyclopedias, almanacs, yearbooks, atlases, newspapers, periodicals, indexes, reviews, and biographical sources, print and nonprint formats (e.g., microfiche, computer banks, film strips.)

40.311 Organization of the Library (3 q.h.)

The organization, administration, and services of municipal libraries; public library systems in the United States; the role of public libraries as educational institutions.

40.312 Multi-Media Centers (3 q.h.)

Organization and management of elementary and secondary school libraries; problems in the selection and evaluation of multi-media materials necessary to the school curriculum.

40.313 Administration of Multi-Media Centers (3 q.h.)

The library as a media center for instructional materials; problems in personnel and budgeting; the library's role in curriculum and services to students and faculty.

40.314 Multi-Media Materials and Services (3 q.h.)

The selection, organization, and use of multi-media materials in school libraries; types of library equipment and services; cataloging of school library materials.

40.321 Introduction to Reference Materials and Methods (3 q.h.)

The basic tools and methods for locating information. Evaluation of dictionaries, encyclopedias, gazetteers and atlases, handbooks, almanacs, directories, and indexes.

40.322 Reference Work in the Social Sciences (3 q.h.)

Scope and use of outstanding reference materials, including government publications, in the broad range of the social sciences: economics, education, political science, sociology, and allied fields. *Prereq.* 40.321 or equiv.

40.323 Reference Work in the Humanities (3 q.h.)

Approaches to the solution of reference problems in the humanities, with special emphasis on literature. *Prereq.* 40.321 or equiv.

40.325 Business Research Tools (3 q.h.)

Assists the business student or professional in becoming familiar and adept in the use of the most respected publications and information sources in the business community. Content relates to such areas as business law, accounting, finance, marketing, statistics, computers, and data bases. Students are given a series of reference assignments to learn where to go, and how to dig out and understand complex data for the answers. Helps students to develop an overall command of key business information tools.

40.331 Descriptive Cataloging (3 q.h.)

Theory and practice of descriptive cataloging, introducing techniques of compiling author, corporate, and serial entries.

40.332 Subject Headings and Classification (3 q.h.)

Introduction to Dewey Decimal Classification and Sears subject headings; further study of descriptive cataloging in book and nonbook materials. *Prereq.* 40.331 or equiv.

40.333 Library of Congress Classification (3 q.h.)

The significant differences between LC and Dewey. Notes on original cataloging and techniques of classification within the LC scheme. Exercises in the use of LC schedules and subject headings. *Prereq.* 40.331 or equiv.

40.341 Children's Library Materials: An Evaluation (3 q.h.)

The history of children's literature; current trends in its publication and social forces that influence its production; criteria for evaluation and aids for selection of types of children's books.

40.342 Library Service to Young People (3 q.h.)

Study of adolescent needs in the field of literature, with application to both public and school libraries; special attention to the problem of material selection, book talks, and discussion groups.

Arts and Sciences Intensive Courses**16.304 Earth Sciences (Intensive)** (9 q.h.)

A composite of 16.301, 16.302, and 16.303, as a one-quarter course.

19.307 Psychology (Intensive) (9 q.h.)

An introductory survey of the historical backgrounds of psychology, psychological measurement and testing, and principles of animal and human learning. Principles of sensory processing, perception, motivation and emotion, and social influences on behavior. Personality theory and

measurement, behavior disorders, mental health, and psychotherapy. *(Not open to students who have taken 19.301, 19.302, 19.303.)*

19.344 Abnormal Psychology (Intensive) (9 q.h.)

Same as 19.341, 19.342, 19.343. *Prereq.* 19.303 or equiv.

20.304 Anthropology (Intensive) (9 q.h.)

Same as 20.301, 20.302, and 20.303.

21.304 Sociology (Intensive) (9 q.h.)

Basic concepts and theories relating to the study of humans as participants in group life. Examines social structure, culture, socialization, the family, primary groups, associations, social stratification, collective behavior, population, and problems of social, political, urban, and industrial change. Term papers or essays may be required. *(Not open to students who have taken 21.301, 21.302, 21.303.)*

21.417 Social Theory 1 (Intensive) (4 q.h.)

A historical survey of sociological theorists, including the work of deTocqueville, Comte, Marx, Durkheim, Cooley, Weber, Simmel, and others. *Prereq.* Consent of the instructor or 12 q.h. in Sociology-Anthropology. *(Not open to students who have credit for 21.317, 21.318, or 21.319.)*

21.418 Social Theory 2 (Intensive) (4 q.h.)

A study of the major theoretical issues in sociology. Discussion concentrates on systematic questions and topics, but material is drawn from theorists such as Mannheim, Merton, Parsons. Students may be required to present papers in class on questions of theoretical interest: e.g., the problem of order, the problem of change, the role of the individual in change, etc. *Prereq.* 21.417 or equiv. *(Not open to students who have credit for 21.317, 21.318, or 21.319.)*

22.321 Public Administration (Intensive) (6 q.h.)

Same as 22.316 and 22.317.

22.329 Comparative Politics (Intensive) (4 q.h.)

A comparative analysis of political culture, organization, and behavior in different national settings.

29.315 Effective Speaking (Intensive) (6 q.h.)

Equivalent of 29.301 and 29.302, Effective Speaking 1 and 2.

30.313 Business Writing and Reports (Intensive) (6 q.h.)

A combination of 30.311 and 30.312.

30.412 Technical Writing (Intensive) (6 q.h.)

The equivalent of 30.410 and 30.411, Technical Writing 1 and 2.

39.304 Economics (Intensive) (9 q.h.)

Combination of Economic Principles and Problems 1, 2, and 3. *(Not open to students who have taken 39.301, 39.302, 39.303.)*

39.314 Statistics (Intensive) (9 q.h.)

Introduction to the collection and organization of data. Concentration on the nature, computation, and uses of

measures of central tendency and variability Introduction to statistical inference, parameters of samples, tests of significance, *t* distribution, and chi square Introduction to the analysis of variance, trend fitting, linear regression, seasonal adjustment, and index numbers (*Not open to students who have taken 39.311 39.312, 39.313.*) *Prereq 39.303 or equiv*

39.334 Business Cycles (Intensive) (9 q.h.)

Combination of 39.331, 39.332, 39.333

Business Administration

41: Accounting

Consultant: Prof. Paul A. Janell (College of Business Administration) (437-3241)

Associate Consultant (Accounting Principles): Dean Walter E. Kearney, Jr. (Northeastern University) (437-2312)

Coordinator: Prof. Richard Keith (College of Business Administration) (437-3241)

41.301 Accounting Principles 1 (3 q.h.)

The basic concepts and methodology of accounting for service and merchandising businesses, and accounting for business assets

41.302 Accounting Principles 2 (3 q.h.)

Emphasizes financial reporting, income measurement, valuation and appraising the financial results of business operations. *Prereq. 41.301*

41.303 Accounting Principles 3 (3 q.h.)

The preparation and interpretation of cost accounting information and utilization of the information in the managerial decision-making process. Topics include payroll, job-order process costs, standard costs, and capital budgeting *Prereq. 41.302*

41.304 Accounting Principles (Intensive) (6 q.h.)

Same as Accounting Principles 1 and 2

41.315 Management Accounting for Nonprofit Organizations (formerly 41.310) (3 q.h.)

An examination of the characteristics of management control in nonprofit organizations. A study of input-output measures, pricing, budgeting, and accounting controls (For non-accounting majors) *Prereq. 41.302*

41.401 Intermediate Accounting 1 (3 q.h.)

A comprehensive examination of the accounting process and the financial statements generated by that process. The focus is on current assets. Specific topics include cash, receivables, investments in marketable securities, and inventories *Prereq 41.302*

41.402 Intermediate Accounting 2 (3 q.h.)

A continuation of Intermediate Accounting 1. A detailed examination of current liabilities, fixed assets including depreciation, intangible assets, and stockholder equity accounts. *Prereq. 41.401*

41.403 Intermediate Accounting 3 (3 q.h.)

A comprehensive examination of some specialized problem areas relating to the preparation and interpretation of

financial statements. Topics may include earnings per share, statement of changes in financial position, accounting changes, bonds payable, and long-term investments. *Prereq. 41.402*

41.404 Intermediate Accounting (Intensive) (6 q.h.)

Same as Intermediate Accounting 1 and 2. *Prereq. 41.302.*

41.405 Cost Accounting 1 (3 q.h.)

The foundations of cost accounting, including terminology, purpose, and relationship with financial accounting; familiarization with product costing systems and their usefulness. *Prereq. 41.302.*

41.406 Cost Accounting 2 (3 q.h.)

Budgetary planning and control, with emphasis on the use of cost data for current operations, special decisions, and long-range planning. *Prereq. 41.405*

41.421 Cost Accounting (Intensive) (6 q.h.)

Same as 41.405 and 41.406. *Prereq. 41.302.*

41.407 Advanced Accounting 1 (3 q.h.)

An in-depth analysis of specialized problem areas in accounting. Topics may include price-level accounting, accounting for income taxes, accounting for pensions and leases. *Prereq. 41.403.*

41.408 Advanced Accounting 2 (3 q.h.)

A comprehensive examination of the problems associated with business combinations. A study of the purchase and pooling methods of consolidations. *Prereq. 41.407.*

41.409 Advanced Accounting 3 (3 q.h.)

A study of the accounting problems associated with partnerships, installment sales and consignments, and multinational corporations. A detailed examination of accounting for "Not-for-Profit Entities." *Prereq. 41.408.*

41.410 Seminar in Contemporary Accounting Problems 1 (3 q.h.)

The careful examination of the underlying concepts and conventions of accounting and their application to financial statements. An in-depth analysis of the areas of revenue and income recognition. *Prereq. 41.406 and 41.407.*

41.411 Seminar in Contemporary Accounting Problems 2 (3 q.h.)

The examination of cost determination and allocation and depreciation. An in-depth study of specialized areas, including such topics as pensions, leases, stock options, and earnings per share. *Prereq. 41.410.*

41.412 Auditing 1 (3 q.h.)

The examination of auditing requirements relative to the professional ethics and legal responsibility of the certified public accountant. A study of the use of the computer in auditing and the utilization of statistical sampling techniques. *Prereq. 41.403.*

41.413 Auditing 2 (3 q.h.)

The methods and approach utilized in auditing aspects, liabilities, owners' equity, and nominal accounts of the firm. *Prereq. 41.412*

41.414 Auditing (Intensive) (6 q.h.)

Same as Auditing 1 and 2. *Prereq.* 41.403.

41.415 Federal Income Taxes 1 (3 q.h.)

The application of the Federal Tax Law to the individual's income, gains, losses, and expenses. A study of the individual's special deductions. *Prereq.* 41.403.

41.416 Federal Income Taxes 2 (3 q.h.)

A study of some specialized tax problems related to the individual. Topics include installment sales and income averaging. A study of the application of the Federal Tax Law to the corporation. *Prereq.* 41.415.

41.417 Internal Auditing 1 (3 q.h.)

Designed to aid in understanding how a modern internal audit function undertakes to review and appraise diverse operations. Studies the audit organization, selection, and development of staff, preparation of long-range programs, performing preliminary surveys, and developing audit programs. Techniques of internal audit appraisal are examined. Topics may include regression analysis and statistical sampling. Case studies may be employed.

41.418 Internal Auditing 2 (3 q.h.)

Continuation of the study of techniques of internal audit appraisal. Topics may include computers as an audit tool, auditor responsibilities, audit work papers, reports, reviews, replies, and management summaries. Case studies are employed. *Prereq.* 41.417.

41.420 Essentials of Personal Income Taxation (3 q.h.)

A special course designed for those students who are not majoring in accounting. The course is designed to teach important aspects of personal income taxation on both the Federal and state level. Tax law, tax planning, and the preparation of individual tax returns are emphasized.

41.422 Federal Income Taxes 3 (3 q.h.)

A study of the application of the Federal Tax Law to the corporation. *Prereq.* 41.416.

43: Marketing

Consultant: Prof. Dan T. Dunn, Jr. (College of Business Administration) (437-3261)

Associate Consultant: Mr. G.P. Foster (426-6550)

Associate Consultant: Mr. George S. Hennessy (890-6620)

43.301 Introduction to Marketing 1 (3 q.h.)

Focuses on the role of marketing in contemporary economic society, in the business enterprise, and in nonprofit organizations such as hospitals and government agencies. Consideration is given to the planning, operation, and evaluation of marketing and promotional efforts necessary to the effective marketing of consumer and industrial products and services in both profit and nonprofit organizations. Students taking this course are strongly urged to continue instruction by also taking Introduction to Marketing 2, 43.302 (see above).

43.302 Introduction to Marketing 2 (3 q.h.)

Continuation of Marketing 1, with emphasis on pricing, distribution channels, product planning, packaging, branding, physical distribution, advertising, sales promotion, and sales force management leading to the development of overall marketing strategies. Case studies of actual marketing problems are used. This course is a prerequisite for many other marketing courses. *Prereq.* 43.301.

43.303 Introduction to Marketing (Intensive) (6 q.h.)

One-quarter course covering the material in Introduction to Marketing 1 and 2, 43.301 and 43.302.

43.310 Advertising and Sales Promotion Management 1 (3 q.h.)

Detailed examination of the use of advertising and sales promotion techniques as communications elements within a marketing strategy. *Prereq.* 43.302.

43.311 Advertising and Sales Promotion Management 2 (3 q.h.)

Continuation of Advertising and Sales Promotion Management 1. Case studies and projects are used to provide training in the development of creative advertising and promotion strategies and in the use of various communications media such as television, radio, and print. *Prereq.* 43.310.

43.313 Marketing Research 1 (3 q.h.)

The use of marketing research as a tool in planning, controlling, and evaluating marketing activities, including an introduction to the application of behavioral and quantitative concepts in the making of marketing decisions and the management of marketing programs. *Prereq.* 43.302.

43.314 Marketing Research 2 (3 q.h.)

Techniques of data collection and analysis in marketing research, forecasting, product planning, sales control, test marketing, marketing evaluation, and marketing information systems. *Prereq.* 43.313.

43.315 Marketing and Sales Seminar (3 q.h.)

Capstone marketing elective. Seniors concentrating in marketing are urged to take this course, which focuses on the formulation and implementation of overall marketing strategy. *Prereq.* 43.314

43.316 Public Relations 1 (3 q.h.)

An introduction and overview of the basic principles, purposes, and methods of public relations in both profit and nonprofit organizations. Also includes discussion of community relations and employee relations.

43.317 Public Relations 2 (3 q.h.)

Continuation of Public Relations 1. Specific training in the development of public relations programs and the overall management of the public relations function in an organization. *Prereq.* 43.316.

43.318 Introduction to Advertising (3 q.h.)

Especially for the nonmarketing (including nonbusiness) concentrator, although marketing concentrators may take

the course. Focuses on advertising as a business tool as well as a force in society.

43.319 Retail Management 1 (3 q.h.)

Detailed examination of the concepts and techniques of store operations and merchandise management. Focuses on the activities and contributions of the various retailing institutions: independents and chains, dealerships, specialty stores, fashion stores, department stores, supermarkets, discount stores, franchises, etc. Topics include retail management, retail profit and loss, starting a retail business, store location, store planning, and the retail organization. *Prereq.* 43.302.

43.320 Retail Management 2 (3 q.h.)

Continuation of Retail Management 1, with stress upon store operations, merchandising planning and control, merchandise management, pricing, buying, sales promotion, customer service, retail accounting, and expense management. *Prereq.* 43.319.

43.322 Sales Management 1 (3 q.h.)

Detailed examination of the use of the sales force as an element of marketing strategy. Selection, training, development, organization, and supervision of the sales force. *Prereq.* 43.302.

43.323 Sales Management 2 (3 q.h.)

Continuation of Sales Management 1, with emphasis on the supervision and evaluation of the sales force. Also, role of personal selling within various marketing programs. Case studies used extensively. *Prereq.* 43.322.

43.324 Consumer Behavior (3 q.h.)

Concerned with developing an understanding of consumer attitudes and behavior processes as the basis of the design of marketing programs. Consideration is given to economic and behavioral models of consumer behavior and to underlying behavioral theories and concepts. *Prereq.* 43.302.

43.326 International Marketing (3 q.h.)

Concentrates on the opportunities and challenges facing the international marketing executive; the decision-making process in marketing goods abroad; the environmental forces—economic, cultural, and political—affecting the marketing process and acting as constraints on the development of marketing strategies abroad; financing international operations. *Prereq.* 43.302.

43.330 Advertising and Sales Promotion (Intensive) (6 q.h.)

One-quarter course covering the same material found in Advertising and Sales Promotion 1 and 2, 43.310 and 43.311. *Prereq.* 43.302.

43.331 Sales Management (Intensive) (6 q.h.)

One-quarter course covering the same material found in Sales Management 1 and 2, 43.322 and 43.323. *Prereq.* 43.302.

43.332 Retail Management (Intensive) (6 q.h.)

One-quarter course covering the same material found in Retail Management 1 and 2, 43.319 and 43.320. *Prereq.* 43.302.

43.334 Marketing Management 1 (3 q.h.)

An advanced case method course designed to develop the student's ability to analyze and make decisions about business problems that involve the creation, distribution, and sale of goods and services. Teaches the student how to establish and control marketing budgets. Marketing Management 1 emphasizes the definition of marketing problems, demand analysis, consumer analysis, and marketing research. Role of the marketing manager. *Prereq.* 43.302.

43.335 Marketing Management 2 (3 q.h.)

A continuation of Marketing Management 1, with emphasis on the formulation and implementation of marketing strategy. Emphasis is placed on product policy, channels of distribution, pricing, advertising, personal selling, and the development of integrated marketing programs of action. *Prereq.* 43.334.

43.336 Marketing Management (Intensive) (6 q.h.)

One-quarter course covering the same material found in Marketing Management 1 and 2, 43.334 and 43.335. *Prereq.* 43.302.

43.337 Marketing and the Government (3 q.h.)

Focuses on the increasingly important legal and regulatory aspects of the environment facing marketers. Specific attention is given to present and potential impact of laws and regulation on pricing, discounts, patents, copyrights, trademarks, distribution, product warranties, advertising claims, competitive actions, environmental impact, and consumer protection. Ideally, this course will be taken during the senior year after much exposure to the marketing function. *Prereq.* 43.302.

43.340 Professional Selling Skills (Intensive) (Replaces Salesmanship Intensive) (6 q.h.)

Development of the skills necessary for effective selling. Examines customer buying process and the steps in a company's sales process. Discusses prospecting, preparation, presentation, and postsale activities. Introduces advanced selling techniques such as team selling. Focuses upon situations where personal selling is a major element of marketing strategy, such as in industrial product, professional service, and high technology marketing. *Prereq.* 43.302.

43.341 High Technology Marketing (3 q.h.)

Focuses on the role of the company's marketing function in transforming technology into products. Discusses planning for product innovation, linkages between marketing and engineering, and communications strategies for marketing high technology products. *Prereq.* 43.302.

44: Finance

Finance

Consultant: Prof. R. J. Hehre (College of Business Administration) (437-3240)

Associate Consultant: W. F. Hancock, Jr. (493-2461)

Associate Consultant: Prof. J. Welch (College of Business Administration) (437-3267)

44.301 Introduction to Financial Management (3 q.h.)

A survey of the scope and nature of financial management, including forms of ownership and their effect on the division of risk, income, and control within the organization; the impact of taxes on financial decisions; financial statements and financial analysis; planning, budgeting, and controlling cash flows, including sources and uses of funds. Introduction to investments and investment management. (*No prerequisite although 39.303 and 41.302 are highly recommended.*)

44.310 Financial Management 1 (3 q.h.)

Working capital policy and the management of current assets, major sources of short-term financing, interest factors in financial decisions, capital budgeting techniques, investment decisions under uncertainty, sources and forms of long-term financing. *Prereq.* 44.301.

44.311 Financial Management 2 (3 q.h.)

Financial structure, leverage, valuation, rates of return, and the cost of capital; dividend policy and internal financing; timing of financial policy. External growth and mergers. Failure, reorganization, and liquidation. International finance. *Prereq.* 44.310.

44.312 Investments 1 (3 q.h.)

Investment goals and objectives. Various types of investments. Role of security markets. Security analysis. *Prereq.* 44.301.

44.313 Investments 2 (3 q.h.)

Relationship between the economy and stock prices. Corporate analysis, earnings, dividends, and cash flow. Introduction to portfolio analysis. Technical analysis vs. fundamental factors. *Prereq.* 44.312.

44.314 Credit Management 1 (3 q.h.)

An introduction to credit and its functions. Role of the credit executive, credit investigation, documentary credit, trade credit. Organization of the credit department. *Prereq.* 44.301.

44.315 Credit Management 2 (3 q.h.)

Various forms of credit and collection services. Analysis of financial statements, determination of credit worthiness. Creditor's rights, adjustment bureau operations, credit insurance and guarantees. *Prereq.* 44.314

44.316 Profit Planning and Control 1 (3 q.h.)

An intensive treatment of managerial planning, budgetary control, and financial analysis. Interrelationship between functional areas in an organization using consolidated profit planning as an integrating device. Fundamental financial analysis, comprehensive profit planning, general

expense planning, production planning, materials planning, purchasing. *Prereq.* 44.301.

44.317 Profit Planning and Control 2 (3 q.h.)

Development and application of variable budgets, planning and controlling capital expenditures, computer applications in profit planning, cash flow planning and control, cost-profit-volume analysis, performance reporting, and analysis of budget variations. *Prereq.* 44.316.

44.318 Management of Financial Institutions 1 (3 q.h.)

A detailed examination of the role, diversity, and operation of the various financial institutions in our economy, including banking and related units; operating objectives, techniques, and services. *Prereq.* 44.301.

44.319 Management of Financial Institutions 2 (3 q.h.)

Investment objectives and asset management. Liquidity, adequacy of capital, portfolio management and selection. Control and community relations. *Prereq.* 44.318.

44.320 Advanced Financial Management (3 q.h.)

A wider and more intensive investigation into the problems of financial management, with emphasis on decision making. Specific topics include inflation, competition for investment funds, financial control and problems of the divisionalized company, and the interrelated problems of creating and maintaining a capital structure. *Prereq.* 44.311.

44.321 Personal Finance (3 q.h.)

(Recommended for non-Finance majors.) A practical approach to problems of managing personal finances. Topics include financial planning, budgeting, obtaining credit and loans, income taxes, savings and investments, life insurance, home buying, and estate planning. Subjects are treated on a nontechnical basis.

44.322 Advanced Investment Management (3 q.h.)

Theories and practice of portfolio selection and management. Special cases and their resolution. Fund management. Legal liability. *Prereq.* 44.313.

44.323 Seminar in Finance (3 q.h.)

An intensive analysis of current problems in finance. Student research and presentation of individual papers. *Prereq.* 44.311.

44.324 Seminar in Investments (3 q.h.)

An intensive analysis of current problems in investments. Student research and presentation of individual papers. *Prereq.* 44.313.

44.325 Personal Financial Management 1 (3 q.h.)

Development of the professional personal financial manager. Analysis of needs and objectives, personalities, limits, and constraints. Techniques for need fulfillment and cash management. *Prereq.* 44.301.

44.326 Personal Financial Management 2 (3 q.h.)

Individual aspects of personal financial plans. Impact of taxes and tax planning. Insurance, trust arrangements, estate planning. *Prereq.* 44.325.

44.327 Personal Financial Management (Intensive)

(6 q.h.)

A one-quarter course covering the same material found in Personal Financial Management 1 and 2. *Prereq.* 44.301.

44.328 International Finance 1 (3 q.h.)

Introduction to international financial management in the multinational corporation. Analysis of basic problems and finance considerations involved with international investments, trade, and payments. Planning in the international environment related to exchange rates, currency revaluations, inflation, and local government policies. *Prereq.* 44.311.

44.329 International Finance 2 (3 q.h.)

Analysis of the financial strategy involved with international investment alternatives, sources of capital, working capital management, fund flows, and management control through accounting and financial reporting. *Prereq.* 44.328.

44.330 New Venture Financing (3 q.h.)

Designed to assist the entrepreneur in establishing and financing his or her own business. Particular problems of small business finance as well as the expansion of established and growing businesses are given close attention. Methods of raising and safeguarding capital and the practical management of new business financial problems are covered as well. Field work and guest lecturers are featured whenever practical. *Prereq.* 44.311.

44.331 Financial Management (Intensive) (6 q.h.)

A one-quarter course covering the same material found in Financial Management 1 and 2. *Prereq.* 44.301.

44.332 Investments (Intensive) (6 q.h.)

A one-quarter course covering the same material found in Investments 1 and 2. *Prereq.* 44.311.

44.333 Consumer Finance (3 q.h.)

An extension of personal finance into the specific area of consumer finance for both business and nonbusiness students. The course will give the opportunity to the student to examine consumer installment sales laws, consumer protection statutes, financing practices of banks and other financing institutions. Activities of the consumer affairs offices of the Attorney General's and Banking Commissioner's departments and their influence on consumer finance will be analyzed. Attention will be focused on a practical interpretation of laws and practices dealing with contracts.

44.334 Personal Insurance Management (3 q.h.)

A survey of the types of insurance available to the individual consumer and how these measures can be used to protect against the financial consequences of loss of property, income, and life. Emphasis is placed on how insurance is used rather than on a technical analysis of the insurance process. Estate planning for individuals is stressed.

44.335 Risk and Insurance Management for Business (3 q.h.)

A broad survey of the various risks which confront the business manager and the various insurance alternatives which are available to meet those risks. Emphasis is placed on the use of insurance rather than on an analysis of the insurance mechanism. A detailed review of imposed insurance requirements, such as social security and OSHA, is included. *Prereq.* 44.301.

45: Management

Consultant: Prof. D. McCarthy (College of Business Administration) (437-3255)

Associate Consultant: Mr. W. A. Gagne (799-4406 X 46)

Associate Consultant: Mr. R. L. Goldberg (421-2602)

General Management**45.301 Management and Organization 1** (3 q.h.)

To introduce the new business person to the setting and general structure of American business, which includes objectives and practices as they affect the American standard of living; the characteristics of private enterprise, and the nature and challenge of capitalism and other forms of economic enterprise. The student is introduced to the forms of business, both large and small; to the structures of organizations; the functions of management as they tend to influence the various forms of business. Provides the opportunity for understanding what a career on the management level of organizations involves, what problems must be faced, what decisions must be reached.

45.302 Management and Organization 2 (3 q.h.)

To introduce the business person to methodologies in planning, organizing, directing, and controlling the functions of production, marketing, sales, and pricing as they relate to the American free enterprise systems as contrasted to other systems of international business. Examination of modern, effective, and proven tools and techniques for coping with the myriad interrelationships and intricacies of systems management. Develops a more comprehensive understanding of the total structure of business and other enterprises. *Prereq.* 45.301.

45.303 Principles and Practices of Management (3 q.h.)

Takes the student from definitions and fundamentals of business to basic concepts relating to the functions of management and to the analytical techniques that are necessary to successful decision making. Emphasizes that management is a continuous process of action by involving the student in "how to" design an organization, understand and deal with people, evaluate the political, social, and economic environment, effectively plan, direct, and control the organization. Short cases and professional articles, included in the text, provide provocative material for discussion and reinforcement of management concepts. *Prereq.* 45.301.

45.305 Management and Organization (Intensive) (6 q.h.)

Combines Management and Organization 1 and 2. See descriptions for 45.301 and 45.302.

45.306 Project Planning and Control (3 q.h.)

Employs a systems approach to planning, scheduling, and controlling of large and small projects. The course is a combination of lectures and case studies that introduces and utilizes various tools and techniques, including bar charts, networks, critical path analysis, and an introduction to PERT. The course will assist the student in planning, scheduling, and allocating resources as a basis for controlling projects and comparing actual against planned performance. It is hoped that students will gain experience through their active participation in the case studies. *Prereq.* 45.301.

45.310 Management Decisions and Policies 1 (3 q.h.)

Examines the total management process associated with the formulation and implementation of an effective strategy for the entire enterprise. Part I deals with the development of corporate objectives, plans, and policies, with emphasis on the interaction between the enterprise and its environment and the consideration of public responsibility. *Prereq.* 100 q.h.

45.311 Management Decisions and Policies 2 (3 q.h.)

The organizations and administrative functions for converting strategic plans into corporate performance and achievements are considered. The concepts of strategic planning and implementation are explored from the perspective of the general manager; particular attention is given to examination and identification of the functions, responsibilities, styles, values, and organization relationships of enterprise top management. Cases are drawn from profit and nonprofit oriented enterprises of various sizes in diversified fields, operating within many different business environments. Students should plan to actively participate in class discussion of case studies. *Prereq.* 45.310.

45.312 Management Decisions and Policies (Intensive) (6 q.h.)

Please refer to the course descriptions for Management Decisions and Policies 1 and 2. The contents of the intensive course are the same, except it is presented twice per week during a single quarter. *Prereq.* 100 q.h.

45.313 Management Seminar 1 (3 q.h.)

A broad interdisciplinary project utilizing one or more of the techniques of library research, field research, field surveys, and organizational audits. Students will have the opportunity to utilize the knowledge gained in earlier course work. *Prereq.* 45.311.

45.314 Management Seminar 2 (3 q.h.)

A continuation of Management Seminar 1. *Prereq.* 45.313.

45.315 Effecting Change (3 q.h.)

Applies managerial concepts and practices within policy or resource constraints to real time operational situations.

Recognizing that today's business manager must operate in an environment of accelerating change, the course considers current factual examples of changing situations and examines guidelines for their resolution. In addition, it explores the process by which the manager makes decisions dealing with the impact of change on the organization and its personnel. Utilizing actual problems confronting today's organizations, the student progressively investigates change stemming from actions of managers and other individual contributors at all levels of the organization. This investigation attempts to determine the sources of change and viable alternative courses of action. The course develops a conceptual framework for handling change in one's own business career. *Prereq.* 45.303.

45.318 Motivation, Management, and Leadership

(3 q.h.)

Designed to help the student to differentiate between management, as a conferred or elective post, and leadership as a combination of personal traits or qualities, as well as to evaluate the impact of various styles of leadership or management on human behavior. Important concepts of motivation will be introduced and analyzed. Each student will have an opportunity to develop an understanding of the working environment as containing a combination of these and other processes that influence both performance and outcome. The course work will be supported by readings from contemporary behavioral scientists. In addition, each student will undertake a research project and will report on it for group discussion and analysis. *Prereq.* 45.303.

45.323 Entrepreneurship and Small Business Management 1 (3 q.h.)

An introduction to the major aspects of managing a small business. Areas probed cover basic elements of entrepreneurship and initial phases of planning, including legal, financial, marketing, control organization, and management functions. To provide realism, actual cases involving small businesses will be used with background text. *Prereq.* 45.301.

45.324 Entrepreneurship and Small Business Management 2 (3 q.h.)

A follow-up to Small Business Management 1, intended for advanced business students. Emphasis will be placed upon developing business plans, analyzing performance, problem identification, maintaining financial health, and planning for the future. Actual cases involving small businesses will be used in conjunction with background reading. *Prereq.* 45.323.

45.325 Entrepreneurship and Small Business Management (Intensive) (6 q.h.)

Same as 45.323 and 45.324. (*Not open to students who have taken those courses.*)

Industrial Management

Consultant: Mr. J. M. Rosenfeld (969-4783)

Associate Consultant: Mr. J. D. Mukjian (542-6000 X 698)

45.400 Production Management and Manufacturing Systems 1 (3 q.h.)

The broad range of activities that occur in production facilities. Introduces students to organization principles, to matters concerning the manufacturing system, the choice of equipment, and the location and layout of the plant. Product and process development, setting quality and production standards, plant production schedules, and the production flow through the transformation process. Emphasis on manufacturing costs, product quality, and delivery performance.

45.401 Production Management and Manufacturing Systems 2 (3 q.h.)

Selected readings in modern production management techniques. Facilities planning and design, including plant layout, materials handling, and related equipment. Engineering economy. *Prereq.* 45.400.

45.402 Production Management and Manufacturing Systems (Intensive) (6 q.h.)

Same as 45.400 and 45.401 (*Not open to students who have taken those courses.*)

45.403 Manufacturing Processes (3 q.h.)

Production processes and material selection in the production and manufacture of hard goods, including selection of best methods by study of casting, machinery, forming, joining, extrusion, finishing, and assembly. The analysis of advanced manufacturing processes, including mass production, numeric control, central vs. line layout systems, automated systems, computer control equipment and systems, equipment and machinery selection, and replacement policies.

45.404 Value Management (3 q.h.)

An organized technique for challenging costs by analyzing a product or method in terms of value function, and costs without sacrificing essential quality.

45.405 Industrial Safety (3 q.h.)

A study of the organization and administration of a comprehensive accident-prevention program, including analysis of industrial hazards and accidents, corrective actions, and the responsibilities of all management echelons.

45.406 Methods Analysis, Motion and Time Study (3 q.h.)

Methods analysis and plant layout, work design, operation analysis, man-machine relationship, elements of motion and time study. Measurement techniques and application. Production standards development for job shop operations applying curve, table, equation, nomograph family and multivariable techniques and utilizing work sampling methods.

45.407 Operations Management (3 q.h.)

Develops student skills in analyzing and managing the operations of a manufacturing operation. Integrates the

techniques and methods, both quantitative and qualitative points of view, and applies them to problems that arise in planning and controlling manufacturing and other operating systems.

45.409 Cases in Industrial Management (3 q.h.)

Cases describing particular operating situations as they are faced by managers in business in which the students base their analyses on an array of facts and judgments. The student will become aware of the skills the manager brings to bear on business problems requiring a diverse background of knowledge about the technologies and techniques of the field. The basic disciplines in the quantitative and behavioral sciences and an understanding of the specific situational context are integrated. Cases are designed to provide the necessary background in topics specifically relevant to production problems.

45.410 Production Control and Inventory Management (3 q.h.)

Theory and practice of the economic control of inventories is developed. A broad spectrum of models for production control and inventory management is examined. Solutions are sought by analytical methods and by numerical simulation. Goals include bringing the range of concept and techniques to the point of useful application in practical design.

45.411 Industrial Decision Making 1 (3 q.h.)

An application-oriented introduction to prescriptive decision analysis. The development of a systematic approach to problem solving and decision making; decision theory; structure of human decisions. Modeling of the decision process. *Prereq.* 10.533.

45.412 Industrial Decision Making 2 (3 q.h.)

Application of probability and utility theory, psychology, and economics to the decision process. Topics covered include the perception of options, uncertainties and objectives, decision trees, and other modes of representation. Criteria of choice, including preference and utility, attitude toward risk, expected value. Practical usefulness of techniques, with application to career planning, job and organization design, and managerial effectiveness. Survey of current practices, real world cases. *Prereq.* 45.411.

45.413 Manufacturing Seminar 1 (3 q.h.)

Problems of manufacturing operations at the plant manager level, analysis of manufacturing problems, including controls of the manufacturing process; selected case studies. *Prereq.* 45.403, 45.410.

45.414 Materials Management (3 q.h.)

The development and examination of materials management, including objectives, organization, and functions as they relate to cost improvement, investment control, and ability to serve the market; materials system; selected case studies.

45.416 Manufacturing Seminar 2 (3 q.h.)

A program of independent study on an approved topic in a particular area of Industrial Management, under the supervision of a faculty member. *Prereq.* 45.413.

45.417 Industry and the Environment 1 (3 q.h.)

Features in-depth analyses of situations where economic interests and environmental concerns are in conflict. Reviews the operation of the capitalistic system as a foundation for examining the resultant ecological risks associated with chemicals, strip-mining, and super-tankers.

45.418 Industry and the Environment 2 (3 q.h.)

The thoughts of Amory Lovins and E.F. Schumacher serve as the basis for examining the economic benefits associated with energy conservation, alternative energy systems, and solid waste recovery systems. *Prereq.* 45.417.

45.419 Managing for Results (3 q.h.)

Serves as a forum for the discussion of the wide ranging theories of Peter Drucker. Emphasis is placed on the concepts and methods available to the result-oriented manager. Topics are derived from selected writings of Drucker. Relationships between theory and practice, including implementation, will be established.

45.420 Economic Analysis in Industry (3 q.h.)

Examination of the principles and techniques needed for analysis of the acquisition and retirement of capital goods by industry and government. Development of the assumptions underlying the various measures of anticipated profitability of capital expenditures, their uses and limitations.

45.421 Management and Operational Control Systems (3 q.h.)

Analysis of the nature of control in general and the characteristics of management control and operational control. Study of control structures, processes, and bases for design and implementation.

Purchasing

Associate Consultant: Mr. G. E. Maguire (620-0810 X 141)

45.451 Purchasing 1 (3 q.h.)

An introduction to the function of purchasing in the industrial organization. The span of purchasing responsibilities, objectives, organization, and personnel requirements. Purchasing policy and systems. The role of the computer in regulating purchasing planning, transactions, and information retrieval. Acquisition of purchased materials, development of sources of supply, and assurance of materials quality. Determination and maintenance of required inventory levels. Control of inventory investment, price determination, cost and price analysis of purchase transactions. Make or buy decisions. Role of standardization and value analysis.

45.452 Purchasing 2 (3 q.h.)

The process of purchase negotiations, budgets, purchase of capital equipment. Purchasing for public and nonprofit institutions. Disposition of surplus and obsolete materials. Traffic and material handling. Forward buying and speculation. Ethical considerations in purchasing. Purchasing law, contract cancellations, purchasing reports, and evaluation of purchasing performance. Control and audit procedures. *Prereq.* 45.451.

45.453 Purchasing (Intensive) (6 q.h.)

Same as 45.451 and 45.452. (*Not open to students who have taken those courses.*)

45.455 The Materials Acquisition Function (3 q.h.)

A survey of the procurement function as found in industry. Designed to furnish students with a broad comprehension of the acquisition function. The mission, procedures, and interfacing of purchasing with other functions and its legitimate objectives are explored. Systems techniques, organizational structures, and required skills are investigated, with particular attention given to the integration of this function into the total cycle of product creation.

45.457 The Art and Technique of Negotiation in Business (3 q.h.)

The process of buyer/seller communication and exchange in arriving at sound purchasing transactions. Explores the reasons for choosing this negotiation, interactive process for arriving at a more satisfactory agreement between buyer and prospective vendor. Accepted strategies and tactics employed by both parties as effective means of achieving legitimate objectives in industrial purchasing activity. Economic and technical considerations are discussed. Psychological and interpersonal environment of the negotiating situation are explored in detail. Students have an opportunity to engage in workshop demonstrations of effective negotiating practice. *Prereq.* 45.451.

45.458 Materials Requirements Planning (3 q.h.)

Analyzes a new process (MRP) for integrating and organizing purchasing and inventory management functions. System is based on production schedule requirements and variations rather than on historical data. System aims at assisting the process of capacity planning for maximum manufacturing efficiency. MRP provides a rational base for economical procurement planning and control. Concentration on MRP's unique concepts for managing material supply activity and other related, critical operating problems.

45.459 Subcontract Management (3 q.h.)

The administration of procurement subcontracts is of major concern to many industrial specialties: purchasing, sales, engineering, project management, finance, manufacturing, and general management. Aims at considering all aspects of this significant procurement function, from development of the work statement through source selection, negotiation, award and post-award administration. Selected cases and exercises will be employed to enhance the students' appreciation of the practical aspects of subcontracting policies and procedures, as well as providing material for class participation. Subcontract requirements in both a commercial as well as a government environment will be treated. *Prereq.* 45.452.

45.460 International Procurement (3 q.h.)

An overview and introduction into international procurement, with emphasis on negotiations of special terms and conditions, offset, coproduction buys. Differences in overseas freight management financial and contractual re-

quirements. Discussion of reliability/quality and procurement practices in international procurement. *Prereq.* 45.452.

47: Real Estate and Hotel and Restaurant Management

Real Estate

Consultant: Mr. Leo M. Flynn (927-3406)

47.320 Real Estate Fundamentals 1 (3 q.h.)

An introduction to the basic principles and terminology of real estate to serve as a background for application in the various practices of the real estate business. (Replaces 47.301)

47.321 Real Estate Fundamentals 2 (3 q.h.)

A general examination of the practices of real estate brokerage (including the preparation for the broker's or sales person's state exam), real estate appraisal, finance, development, management, and investment. *Prereq.* 47.320. (Replaces 47.302)

47.322 Real Estate Fundamentals (Intensive) (6 q.h.)

Same as 47.320 and 47.321. (*Not open to students who have taken those courses.*)

47.323 Real Estate Appraisal 1 (3 q.h.)

A fundamental course in the appraisal of single family residences; analysis of city or town neighborhood influences, site evaluation, building diagnosis, depreciation; study of the various approaches to value; appraisal report preparation. *Prereq.* 47.321. (Replaces 47.306)

47.324 Real Estate Appraisal 2 (3 q.h.)

A specialized course in the appraisal of income properties; application of the cost, market, and income approaches to apartment buildings and other commercial and industrial properties. *Prereq.* 47.323. (Replaces 47.307)

47.325 Real Estate Appraisal 3 (3 q.h.)

A continuation of Real Estate Appraisal 2, with special emphasis on the application of the various methods of capitalization and residual techniques. Repeated classroom problems, assigned exercises, case studies, and field trips will be employed. *Prereq.* 47.324. (Replaces 47.308)

47.328 Real Estate Financial Analysis 1 (3 q.h.)

Provides the tools that permit the student to critically examine and analyze the viability of any proposed real estate investment. Examines in detail the financial aspects of acquisition, ownership, and disposition. Considers taxation of investments, forms of property ownership (organization of the venture), analysis of operating statements, financial accounting, use of leverage, "tax-sheltered" investments, special situations, and other considerations. Develops criteria of risk and return on investment (R.O.I.) that should be established by various types of investors. *Prereq.* 47.325 or permission of instructor. (Replaces 47.304)

47.329 Real Estate Financial Analysis 2 (3 q.h.)

A detailed analysis of the risks and rewards of real estate investments, problems involved in financing income prop-

erties, with emphasis on the use of case studies, homework problems, class discussion and debate. Class participation is stressed. *Prereq.* 47.328. (Replaces 47.305)

47.330 Real Estate Development (3 q.h.)

A practical step-by-step approach to the organization and development of a real estate project for the entrepreneur, banker, or broker. Topics include the role of the developer; acquisition of land; site analysis; construction finance; gap financing and permanent commitments; project budgeting for capital costs and for income and expense; selection of professionals; negotiations of agreements with contractors and owners; marketing the completed project. Case studies and guest lecturers may be used. *Prereq.* 47.329 or permission of instructor. (Replaces 47.311)

47.331 Real Estate Law 1 (3 q.h.)

Concentrates on private real estate law, including ownership rights in land; leasehold rights and easements in the land of another; legal forms of ownership; the transfer and acquisition of title and of other interests; recording of deeds, leases, and other instruments; the landlord/tenants relationship. (Replaces 47.312)

47.332 Real Estate Law 2 (3 q.h.)

Concentrates on public real estate law, including government powers, rights and controls on privately owned real estate; zoning and subdivision controls; conservation controls; taxation of real estate; rent controls, eminent domain. (Replaces 47.313)

47.333 Real Estate Law 3 (3 q.h.)

A continuation of Real Estate Law 2, with emphasis on case study method. Class participation and discussion are stressed. (Replaces 47.314)

47.334 Real Estate Management 1 (3 q.h.)

Designed to prepare the student for the practical problems of real estate management. Stresses the requisite day-to-day management of commercial, industrial, and residential properties, as well as the need for a management strategy as it relates to long-term property values. *Prereq.* 47.321 or permission of instructor. (Replaces 47.316)

47.335 Real Estate Management 2 (3 q.h.)

Continuation of 47.334. *Prereq.* 47.334. (Replaces 47.317)

47.336 Real Estate Management 3 (3 q.h.)

Continuation of 47.335. *Prereq.* 47.335. (Replaces 47.318)

47.337 Real Estate Title Examination (3 q.h.)

A specialized course dealing with the examination of title to real estate and the preparation of a complete report. *Prereq.* 47.321 or permission of instructor. (Replaces 47.319)

47.338 Real Estate Financial Analysis (Intensive) (6 q.h.)

Same as 47.328 and 47.329. (*Not open to students who have taken those courses.*)

Hotel and Restaurant Management

Consultant: James F. Downey (742-6100)

47.400 Introduction to Hotel and Restaurant Management 1 (3 q.h.)

A survey of the hospitality industry in today's economy. Emphasis on industry growth and development, management problems, and principles of hotel and restaurant management.

47.401 Introduction to Hotel and Restaurant Management 2 (3 q.h.)

A continuation of Hotel and Restaurant Management 1
Prereq. 47.400.

47.402 Introduction to Hotel and Restaurant Management (Intensive) (6 q.h.)

Same as Introduction to Hotel and Restaurant Management 1 and 2. (*Not open to students who have taken 47.400 and/or 47.401.*)

47.403 Food and Beverage Management (3 q.h.)

A survey of the essentials of food and beverage controls from both operational and accounting standpoints. Methods and forms used in the industry will be examined. (Laboratory fee)

47.404 Managerial Accounting for the Hospitality Industry (3 q.h.)

A study of the financial practices and systems used in the hospitality industry. Controls, budgeting, financial statements, and specialized industry accounting procedures are analyzed. *Prereq.* 41.302.

47.405 Management Systems for the Hospitality Industry (3 q.h.)

A study of the information systems utilized in the hospitality industry to provide better management information for analysis and decision making. *Prereq.* 49.311.

47.406 Front Office Management (3 q.h.)

The role and functions of the front office will be studied as they relate to the operation of the entire hotel. The following areas are covered: front office structure, registration, payment, reservations, and night audit. *Prereq.* 45.301.

47.407 Hotel and Restaurant Law (3 q.h.)

An introduction to the fundamental laws, rules, and regulations applicable to the hospitality industry. *Prereq.* 49.302.

47.408 Hospitality Marketing Management (3 q.h.)

An analysis of the market in which the hospitality industry operates. The development of a marketing plan and how to implement this plan in terms of the overall operation. *Prereq.* 43.301.

47.409 Design and Layout (3 q.h.)

A consideration of the design and layout applicable to the hotel and restaurant industry

47.410 Food Preparation 1 (3 q.h.)

Introduction to the fundamentals of food preparation and service, with emphasis on terminology and equipment of

the food service industry. Students receive classroom instructions and participate in demonstrations of preparing food in a small-quantity laboratory. Menu planning, requisitioning, pricing, as well as preparation and service are covered. (Laboratory fee)

47.411 Food Preparation 2 (3 q.h.)

A continuation of Food Preparation 1. *Prereq.* 47.410. (Laboratory fee)

47.412 Food Service Engineering and Sanitation (3 q.h.)

Examines the organization of the maintenance and engineering function and provides the technical information necessary to establish effective preventive programs. Also, details the fundamentals of sanitation for food service employees and covers practical guidance in safe food handling

47.415 Seminar in Hotel and Restaurant Management 1 (3 q.h.)

A broad interdisciplinary project utilizing one or more of the techniques of library research, field research, field survey, and organizational audits. Students will have the opportunity to utilize the knowledge gained in earlier course work *Prereq.* Seniors only

47.416 Seminar in Hotel and Restaurant Management 2 (3 q.h.)

A continuation of Seminar in Hotel and Restaurant Management 1. *Prereq.* 47.415.

47.417 Food and Beverage Cost Control (3 q.h.)

Introduces management attitude toward cost controls through analysis of every aspect of the food service operation. Topics include classification of food service facilities, cost accounting, purchasing, inventory, and production control methods.

47.418 Purchasing Methods for Food and Lodging Industry (3 q.h.)

Discusses accepted methods of purchasing food products such as meat, fish, poultry, fresh fruit, produce, and groceries; nonperishable items such as equipment and housekeeping supplies used in the industry. Evaluation of products, yield testing, determining real cost. Use of special testing equipment to help in evaluation will be employed

47.419 Introduction to Tourism (3 q.h.)

Introduction to the science, art, and business of attracting and transporting and accommodating visitors, and graciously catering to their needs and wants. Topics include: sociology, psychology, marketing, and the economics of tourism.

47.422 Food Science and Technology (3 q.h.)

An introductory course dealing with principles of food processing, quality assurance, and quality control in assessing product stability, produce changes, and consumer acceptance. Designed to provide an understanding of the principles of applications of these principles to food and food service operations. (Replaces 47.413)

48: Transportation and Physical Distribution Management

Consultant: Dr. R. C. Lieb (College of Business Administration) (437-3104)

48.301 Elements of Transportation (3 q.h.)

An introduction to regulatory, economic, and management aspects of transportation from the viewpoint of shippers, government, and carrier management. Topics include: cost, rates, operations, entry, mergers, and intercity passenger carriage. A course of general interest to students of business, law, or government.

48.302 Physical Distribution Management (3 q.h.)

An introduction to the physical distribution management concept. Topics include inventory control, warehousing, cost control, and locational strategy. Course uses text and case materials developed from industry situations.

48.303 Organization and Control of Physical Distribution Management (3 q.h.)

Establishment of the firm's physical distribution organization. Interrelationships with other company functions. Examination of advanced physical distribution problems.

48.304 Management of Warehouse Operations (3 q.h.)

A practical course in the management of warehouses. Topics include: site selection, construction, finance, operations, measurement of performance, and warehouse technology.

48.305 Traffic Management 1—Rates and Tariffs (3 q.h.)

A practical course in the interpretation and use of tariffs. Topics include classifications, rate scales, tariff rules, rate-making procedures, and ICC law and practice.

48.306 Traffic Management 2—Selected Topics (3 q.h.)

Further study of traffic management, covering such topics as routing, claims, insurance, consolidation, and packaging. *Prereq.* 48.305.

48.307 Contemporary Issues in Transportation and Distribution (3 q.h.)

Focuses attention on a limited number of topics that are of particular interest during the current academic year.

48.310 Surface Transportation 1—Railroad Management (3 q.h.)

A management-oriented course that considers the current and future status of the railroads. Topics include: investment and finance, mergers, marketing, labor relations, diversification, and public policy.

48.311 Surface Transportation 2—Motor Carrier Management (3 q.h.)

A management-oriented course that examines the regulated motor carrier industry. Topics include: equipment selection, finance, mergers, marketing, labor relations, routes, operations and control, and public policy.

48.312 Surface Transportation 3—Marine Transportation (3 q.h.)

A management-oriented course that examines the U.S. Merchant Marine. Topics include: international trade pat-

terns, government promotion and regulation, technological innovations, port facilities, and labor relations.

48.313 Surface Transportation 4—Private Trucking (3 q.h.)

Beginning a private trucking operation. Topics include: legal guidelines, purchase vs. lease, operations, and performance measurement.

48.314 Air Transportation (3 q. h.)

Economics and regulation of Civil Aeronautics Board certified air carriage. Topics include: entry, operations, pricing, mergers, cost analysis, and financing.

48.315 Urban Transportation (3 q.h.)

The scope and status of transportation in our metropolitan area. Examination of the planning and financing of urban transportation systems. The role of local, state, and Federal government units. The problems of transit management.

48.316 Carrier Management (3 q.h.)

The transportation system from the carrier viewpoint; managerial response to a heavily regulated and rapidly expanding environment; focus on carrier decision making, including routes, scheduling, financing, and pricing of services.

48.320 Transportation Loss, Damage, and Other Claims (3 q.h.)

Comprehensive review and examination of the rules, regulations, and pertinent elements of transportation claims resulting from the loss or damage of cargo, overcharges and undercharges, and related carrier and shipper activities. *Prereq.* 48.322.

48.321 Transportation Regulation 1 (Replaces 48.308) (3 q.h.)

Examines principal elements of transport regulation, public policy, and the role of Federal and state regulatory agencies. Specific attention is given to the types of commerce, carriers, and service subject to regulation, entry and exit requirements, economic and cost considerations, and selective rate and tariff construction rules. Addresses all modes with stronger emphasis on rail and motor issues.

48.322 Transportation Regulation 2 (Replaces 48.309) (3 q.h.)

Examination of the regulations and industry practices, covering the performance requirements, liabilities, and responsibilities of shippers, regulated carriers, and exempt forms of transportation. Reviews rules and procedures established by the ICC and Massachusetts DPU, with specific attention directed toward informal and modified procedure cases. *Prereq.* 48.321.

48.323 International Transportation and Distribution Management (3 q.h.)

Review of United States role in international transportation. Emphasis on the industry structure of two primary modes of international transportation, aviation and maritime. Also examines the major indirect supporting businesses and/or agencies involved in the international movement of people and goods.

48.324 Case Studies in Transportation Regulation 1 (3 q.h.)

An intensive study course directed toward review and understanding of pertinent areas of transportation regulation and economics. Involves preparation of selected cases dealing with many areas of traffic law to develop understanding of the Interstate Commerce Act and related statutes.

48.325 Case Studies in Transportation Regulation 2 (3 q.h.)

Continuation of 48.324. *Prereq.* 48.324.

48.326 Case Studies in Transportation Regulation 3 (3 q.h.)

Continuation of 48.325. *Prereq.* 48.325.

49: Law

Consultant: Thomas J. Ahern (426-4211)

49.301 Law 1 (3 q.h.)

Study of the nature, formation, and essential elements of contracts, including performance and remedies for breach. Agency, rights and duties of principal and agent, scope of authority, relationships to third persons.

49.302 Law 2 (3 q.h.)

Sales as governed by the Uniform Commercial Code, including the law of warranty. Business organizations, partnerships, corporations, and other important business forms. *Prereq.* 49.301.

49.303 Law (Intensive) (6 q.h.)

Introduction to the legal system. Agency: rights and duties of principal and agent, scope of authority, relationships to third persons. Contracts: nature, formation, and essential elements of contracts. Sales: as governed by the Uniform Commercial Code, including law of warranty. Property: real property, personal property and bailments. Commercial paper: a study of the function of negotiability, emphasis on bank checks and promissory notes. Business organizations: partnerships, corporations, and other important business forms. Bankruptcy and secured transactions.

49.304 Law and Social Issues (3 q.h.)

A study of the structure and dynamics of the American legal system, approached through an analysis of selected cases dealing with social issues.

49.305 Law 3 (3 q.h.)

Commercial paper: a study of the function of negotiability; emphasis on bank checks and promissory notes. Property: real property, personal property and bailments. Bankruptcy and secured transactions. *Prereq.* 49.302.

49.306 Law for Personal Planning (3 q.h.)

Legal aspects of personal and family planning, including: consumer rights, wills and estate planning, marital law, real estate purchase, tenants rights, other selected topics of interest.

Management Information Systems

Consultant: Mr. T. J. McNamara (895-6047)

Associate Consultant (EDP): Mr. T. Kelly (726-2273)

Associate Consultant (Programming): Mr. J. Sullivan (437-3392)

Associate Consultant (Systems): Mr. N. Conklin (671-2870)

49.310 Electronic Data Processing 1 (3 q.h.)

An introduction to computers, including discussion of numbering and coding systems; data processing history; business and computer concepts; hardware; and input and output devices.

49.311 Electronic Data Processing 2 (3 q.h.)

A continuation of EDP 1, including a discussion of the systems development life cycle; programming tools and preparation; and overview of COBOL concepts; use of computers and specific business applications; data communication concepts, time sharing, data base principles.

49.314 Electronic Data Processing (Intensive) (6 q.h.)

Intensifies material of EDP 1 and EDP 2 into a single quarter by doubling frequency of class meetings and pace of nonclass work.

49.320 COBOL For Non-Programmers (3 q.h.)

A one-quarter introductory computer programming course for business students. Fundamentals of computer programming are introduced along with COBOL, Common Business Oriented Language. The divisions of COBOL, data file structures, and verb actions are studied. Each student will prepare and check out several programs using the University Computer Center. *Prereq.* 49.311.

49.321 COBOL Programming 1 (3 q.h.)

Fundamentals in computer programming for business applications are introduced. COBOL, Common Business Oriented Language, the standard business programming language of EDP, is studied. Principles of flowcharting, as well as input and output formats, are studied. Programs prepared by the student are run and checked out. *Prereq.* 49.311.

49.322 COBOL Programming 2 (3 q.h.)

Programming in COBOL is presented in more detail. Business data processing functions of input editing, record processing, and output editing are illustrated and implemented in programs prepared and run on the University's computer. Students may use "on-line" terminals for program checkout. *Prereq.* 49.320 or 49.321.

49.323 COBOL Programming 3 (3 q.h.)

More sophisticated computer programming techniques are applied to the solution of more complex business application problems. Different techniques and approaches are discussed, e.g., top-down design will be discussed and structured programming techniques will be practiced. Meetings are divided into lectures and computer problem-solving sessions. File processing problems in magnetic disk and magnetic tape are presented. COBOL subroutines and sort techniques are studied. *Prereq.* 49.322.

49.341 Advanced COBOL Programming (3 q.h.)

This one-quarter programming course is offered for the advanced COBOL programmer. Several kinds of programming disciplines will be presented. Programming

techniques studied will include string and unstring, call subroutines, table handling with 1, 2, and 3 dimensions, indexed sequential access methods (ISAM) for file processing, debug, communications, and copy library. *Prereq.* 49.323.

49.344 COBOL Programming (Intensive) A (6 q.h.)

Intensifies material of 49.321 and 49.322 (COBOL Programming 1 and 2) into a single quarter by meeting twice a week for two hours per session. The pace of computer programs written and debugged is also intensified. *Prereq.* 49.311.

49.345 COBOL Programming (Intensive) B (6 q.h.)

Intensifies material of 49.323 and 49.341 (COBOL Programming 3 and Advanced COBOL Programming) into a single quarter by meeting twice a week for two hours per session. The pace of computer programs written and debugged is also intensified. *Prereq.* 49.322 or 49.344.

49.324 Assembly Programming 1 (3 q.h.)

Introduction to assembler language programming, using the University's computing system. Organization, representation, and processing data within the computer. Looping, instruction modification, indexing, indirect addressing, and data retrieval are introduced. cursory survey of assembler languages in general. *Prereq.* Demonstrated familiarity with any currently available computer language.

49.325 Assembly Programming 2 (3 q.h.)

Further exploration of assembler language techniques, other addressing structures, floating point techniques, coding, and use of macro instructions. Input-output routines, use of operating systems for job scheduling, resource allocation, file handling. Business problems analyzed, flowcharted, programmed, and debugged on the University's computer by students. Debugging of problems by core dump analysis. *Prereq.* 49.324.

49.326 Assembly Programming 3 (3 q.h.)

Utilization of business data processing hardware on the University's computing system. Further use of operating system, divide independent file handling. Blocked and unblocked file manipulation. Application of assembler language to a sophisticated programming project. *Prereq.* 49.325.

49.327 FORTRAN Programming 1 (3 q.h.)

Designed to give the student the opportunity to gain a working knowledge of FORTRAN, the modern problem-oriented computer language. Enables the professional to understand the use of a computer in solving problems in business, mathematics, and the social and physical sciences by introducing him or her to problems in selected applications and illustrating use of FORTRAN in finding solutions. *Prereq.* 49.311.

49.328 FORTRAN Programming 2 (3 q.h.)

Helps provide the student with practical experience in the use of FORTRAN in solving significant problems in business, mathematics, and the social and physical sciences.

Problems of sufficient complexity are used to allow the student to actively participate in the various steps necessary to analyze, define, document, and solve the problem using FORTRAN. *Prereq.* 49.327.

49.329 FORTRAN Programming 3 (3 q.h.)

A sophisticated set of problems is presented to teams of students for solution. Consultations with instructor allow students to actively participate in solving problems with the use of FORTRAN. *Prereq.* 49.328.

49.330 RPG Programming (3 q.h.)

A working knowledge of the Report Program Generation language. This language is suited to small-scale computer usage for such tasks as: report generations; file updating; various utility functions. Students write the debug class problems using a University computer or a computer available to the student. *Prereq.* 49.311 or 49.314.

49.331 Computer Operating Systems 1 (3 q.h.)

Survey-type course describing operating systems and investigating the full range of systems services available under computer operating systems. Special emphasis is placed on their value as tools for developing management information. (Note: This quarter could stand alone as management tool for decision making.) *Prereq.* 49.323.

49.332 Computer Operating Systems 2 (3 q.h.)

Specific software systems covered are systems supervisor, data management system, FORTRAN, COBOL, PL/1, and special purpose compilers. Also investigated are operating systems that accommodate network analysis, PERT systems, simulation packages, and statistical analysis packages. Detailed analysis on data management systems with specific case studies and development of operating system programs. *Prereq.* 49.331.

49.333 Mini Computers in Business 1 (3 q.h.)

Applicable to non-MIS business majors, as well as students with a Systems or EDP focus. Topics covered include: analysis of cost/performance; systems consideration of minis vs. alternatives; role of minis in a variety of applications, such as: time sharing, intelligent terminals, data entry and gathering, data communications, and others. Emphasis is placed on evaluation of minis as cost-effective elements of a business system. *Prereq.* 49.320 or 49.321.

49.334 Mini Computers in Business 2 (3 q.h.)

Development of system specifications, functional configurations, systems tradeoffs, site preparation, and maintenance considerations. Detailed analysis of systems with specific case studies related to business applications. *Prereq.* 49.333.

49.336 Data-Base Systems (3 q.h.)

An introduction to data-base approach to the design of integrated information applications. Data-base design, data structures, diagramming, CODASYL data definition language, data manipulation language, data-base implementation and evaluation. *Prereq.* 49.322, 49.361.

49.340 Programming in BASIC 1 (3 q.h.)

An introductory-level course in computer programming using the language BASIC. Beginners All-purpose Symbolic

Instruction Code is an easily learned, comprehensive language that will allow students to begin using EDP methods in problem solving. Students will write, debug, and execute a number of individual and class projects using the University Computer Center. BASIC is a programming language that lends itself well to execution from "off-site" terminal hardware. *Prereq.* 49.311.

49.342 Programming in BASIC 2 (3 q.h.)

A continuation of 49.340, covering more sophisticated computer programming. Techniques are applied to the solution of more complex application problems. BASIC subroutines are studied and file processing problems are presented. Meetings are divided into lectures and problem solving sessions. *Prereq.* 49.340.

49.343 PASCAL Programming (3 q.h.)

An introductory course in computer programming using the language PASCAL, which is particularly popular in the educational and microprocessor communities. Students will write, debug, and execute a number of individual and class projects using the University Computer Center. *Prereq.* 49.311.

49.360 Systems Analysis and Design 1 (3 q.h.)

An introductory course to Systems Analysis and Design. A study of the Systems organizational structures as they relate to MIS functions within a business enterprise. It includes study of systems project initiation, preliminary and detailed systems investigations, and analysis techniques. In addition, it covers the start of the System Output Design process. *Prereq.* 49.311

49.361 Systems Analysis and Design 2 (3 q.h.)

This quarter builds upon what was studied in Systems Analysis and Design 1. It includes a continuation of the Systems Output Design, Systems Input Design, and the design of Systems Files. It includes the design considerations related to Computer Systems processing and the importance of Systems Controls in On-Line and Off-Line Batch Systems. Includes the study of Systems design proposals to management. *Prereq.* 49.360.

49.362 Systems Analysis and Design 3 (3 q.h.)

This quarter covers the Systems development implementation and evaluation phases of a total MIS system. It covers an introduction to project management, project scheduling, training, and documentation. Includes programming assignments, specifications, testing and conversion techniques; discusses the pros and cons of differing hardware and software alternatives related to Systems implementations and helps the student make a reasonable choice in each case. Includes a discussion of current and future trends in Systems Analysis and Design. *Prereq.* 49.361.

49.363 Systems Analysis and Design 4 (3 q.h.)

This quarter covers Data Communications and Distributed Processing techniques as related to Management Information Systems. Includes the study of communication concepts, hardware, software, and network topologies from the business system perspective. Also includes data

flow analysis, network concepts, and control techniques. A team case study will solidify communication fundamentals. *Prereq.* 49.362.

49.375 Systems Analysis and Design 1 (Intensive) (6 q.h.)

Same as 49.360 and 49.361. (*Not open to students who have taken those courses.*)

49.379 Systems Analysis and Design 2 (Intensive) (6 q.h.)

Same as 49.362 and 49.363. (*Not open to students who have taken those courses.*) *Prereq.* 49.361.

49.377 Systems Analysis A (4.5 q.h.)

Same as 49.360 and 49.361. *Prereq.* 49.311.

49.378 Systems Analysis B (4.5 q.h.)

Continuation of 49.361 and 49.362. *Prereq.* 49.377.

49.364 Data Systems Administration (3 q.h.)

The major phases involved in the study and detailed planning for effective use of data processing equipment and management sciences in meeting the information needs of business, including the analysis of company objectives, feasibility study, system specifications, equipment selection, and implementation of the new system. *Prereq.* 49.311 or 49.314.

49.365 Business Data Processing Applications 1 (3 q.h.)

Each student is given an opportunity to understand and perceive a company as a total operating system. Specific systems applications examined include inventory control, purchasing, accounts payable, and their integration. Specific techniques on data collection, including data communications, are dealt with during the quarter. A field trip to a communications training center and a team case study project complete the quarter. *Prereq.* 49.364

49.366 Business Data Processing Applications 2 (3 q.h.)

A continuation of 49.365, covering additional information systems of accounts receivable, sales analysis, the design of integrated systems, a review of "on-line" systems, and computer system simulation. The opportunity to participate in a computer simulation exercise is offered during a field trip. A team case study project completes the quarter. *Prereq.* 49.365.

49.367 Senior Seminar 1 (3 q.h.)

The student pursues a project on an approved topic tailored to meet individual needs in a particular area of MIS/EDP, under the supervision of a faculty member.

49.368 Senior Seminar 2 (3 q.h.)

A continuation of Senior Seminar 1. *Prereq.* 49.367.

49.369 Auditing Data Processing (3 q.h.)

Develops and discusses audit techniques, specifically toward EDP systems, programming, and operations. Emphasis on EDP standard practices, procedures, documentation, and safety and security. Defines EDP business risks and related exposures, i.e., fraud, embezzlement,

misuse or destruction of company assets, or business interruption. Discusses EDP portion of accounting requirements of the Foreign Corrupt Practices Act of 1977. Course content is oriented toward EDP managers, internal auditors, and public accountants. Useful to the auditor, as it defines EDP specific audit techniques and is correspondingly useful to the EDP manager regarding what to expect when receiving a comprehensive audit. *Prereq.* 49.311.

49.373 Information Processing in Medicine (3 q.h.)

A nontechnical survey of the impact and potential of computers in medicine: medical records; clinical reporting systems; automated laboratories; on-line monitoring; research needs; medical administration requirements. Analysis of the content and interactions of medical information sub-systems. Implications of computerization of various medical activities; equipment selection; organizational considerations. *Prereq.* 49.310 or 49.314.

49.376 Computer Privacy and Security (3 q.h.)

A comprehensive review of the real threats posed by modern electronic computers, as well as threats to computers and their users. Includes a review of the privacy issue as well as security approaches, techniques, and tools used to safeguard computers. Actual case studies of computer abuse. *Prereq.* 49.311.

49.390 Structured Analysis and Design Methods (3 q.h.)

Examines and illustrates the methods of Structured Systems Analysis and Design. Topics include top-down design, data-flows, decision logic documentations, structured English, structured walk-throughs, and the use of the Data Dictionary as a documentation tool. Students learn by applying the methods to sample business problems and case studies. *Prereq.* 49.362

Quality Control and Management Sciences

Associate Consultant: Prof. R. A. Parsons (College of Business Administration) (437-3252)

49.380 Introduction to Operations Research (3 q.h.)

Mathematical programming; linear programming; graphical, Simplex, and transportation models; sensitivity analysis; the dual, degeneracy, integer programming; non-linear programming.

49.381 Operations Research Applications (3 q.h.)

Special topics including decision making under uncertainty; decision tree analysis; dynamic programming, queuing theory, PERT-CPM, and simulation. *Prereq.* 49.380.

49.382 Statistical Quality Control (3 q.h.)

Description and practical application of the basic statistical quality control methods for quality assurance, quality control, and quality improvement of products and services; the determination of process capability; the use of quality control charts for measurable and nonmeasurable quality characteristics; application of statistical and probability considerations in acceptance sampling of purchased material, work in process, and outgoing products; methods

of predicting sampling results using the hyper-geometric, the binomial, and the Poisson distributions; risks involved in sampling and concepts of AQL, RQL, and AOQL. *Prereq.* 39.313.

49.383 Management of Quality Control (3 q.h.)

Modern concepts of managing the quality control function of a company to maximize customer satisfaction at minimum quality cost; the idea of total quality control; measurement of the cost of quality, development of a coordinate program of improvement, organizing for diagnosis of defect causes. *Prereq.* 49.382.

49.384 Advanced Quality Control (3 q.h.)

Detailed study of specialized techniques used in defect-cause diagnosis and problem analysis. Complete analysis of process capability; the multi-vari chart; pictograms; the span plan method; special emphasis on design of control plans for process quality control and special cases of product acceptance. *Prereq.* 49.383.

49.385 Principles of Material Inspection (3 q.h.)

An operating and technical-level course involving mensuration, need, and function of inspection and specifications; basic principles and techniques of measurements; various methods and equipment used for gauging and measuring; special measuring and inspection problems.

49.386 Industrial Experimentation (3 q.h.)

Modern small sample techniques are applied to industrial problems. Use of statistical inference to make estimates and set confidence intervals of key characteristics of production lots and processes; design of single- and multiple-factor experiments; tests of significance; analysis of variance. Correlation techniques; experimental design, balancing and randomizing techniques; factorial designs; nested designs; Latin square; random balance/multiple-balance. *Prereq.* 39.313.

49.388 Principles of Quality Assurance (3 q.h.)

The quality assurance function is an ongoing responsibility initiating with product design and continuing with vendor selection, incoming inspection, stock room control, monitoring of the manufacturing process, final product inspection, and the crucial final phase of customer acceptance. Examines the process described above and the role of quality assurance as the product moves through the stages from product design to consumer acceptance. *Prereq.* 39.313.

Personnel and Industrial Relations

Consultant: Prof. Christine L. Hobart (College of Business Administration) (437-3257)

Associate Consultant (Personnel Relations): Mr. R. E. Guitarr (475-5000)

Associate Consultant (Industrial Labor Relations): Mr. D.F. Hurley (785-0484)

49.400 Human Relations in Organizations 1 (3 q.h.)

Emphasizes the expanding popularity of human relations, describing participation, formal and informal organization concepts, and leadership patterns.

49.401 Human Relations in Organizations 2 (3 q.h.)

Provides a review of the processes of communication, appraisal of performance, and accomplishment of change. Classes are highly participative, with emphasis on case discussion as related to text material. *Prereq.* 49.400.

49.402 Human Relations in Organizations (Intensive) (6 q.h.)

Same as 49.400 and 49.401. (*Not open to students who have taken those courses.*)

49.403 Advanced Human Relations (3 q.h.)

A seminar to discuss the theories of human effectiveness. An amplification of topics surveyed in Human Relations 1 and 2, emphasizing their practical application to present-day management of business enterprises. Reviews the implications of such theories as the managerial grid, Theory X, Y, maintenance vs. motivation. *Prereq.* 49.401 or equiv.

49.404 Personnel Management 1 (3 q.h.)

Organization, function, and procedures of the personnel department in relationship to the management organization; manpower selection; training; rating; personnel policies, benefits, and reports.

49.405 Personnel Management 2 (3 q.h.)

Principles and techniques of training, the psychology of learning, meeting training needs, principles and practices of organizing training activities. *Prereq.* 49.404.

49.406 Personnel Management 3 (3 q.h.)

Controlling and coordinating the managerial responsibility of supervision; planning the work; employee assignments; employee attitudes; employee grievances; administering company policies, developing work interest. *Prereq.* 49.405.

49.415 Personnel Management (Intensive) (9 q.h.)

Same as 49.404, 49.405, 49.406. (*Not open to students who have taken those courses.*)

49.407 Techniques of Employee Selection (3 q.h.)

Recruitment, selection, and placement techniques, including interviewing, employment testing, and examining.

49.408 Wage and Salary Administration (3 q.h.)

Wage and salary determination; merit and incentive plans; wage and salary structure; compensation methods; impact on employer-employee relations in the economy.

49.409 Employee Benefits (3 q.h.)

Private and public programs directed to job and worker income security; unemployment compensation; training and employment services; private guaranteed income; retirement pension plans and disability; group insurance.

49.410 Job Evaluation (3 q.h.)

Wage-payment systems; theory of wage determination, job elements, rating scales, writing job descriptions and specifications; selection of plans; development of wage structures and integration with the principles of merit rating.

49.411 Creative Problem Solving (3 q.h.)

New ways of thinking are learned and practiced. Sensing and analyzing problems, producing ideas, evaluating and implementing solutions. The attitudes and climate conducive to creative thinking as well as common barriers are presented. Provides methods for developing imagination, which is the key part of the creative process.

49.420 Labor Management Relations 1 (3 q.h.)

The origin and development of labor unions in the United States; an examination of the structure, policies, and goals of unions; the legal framework of collective bargaining, including employer and union impacting on bargaining as prescribed and proscribed by the Railway Labor Act, the Labor Management Relations Act, and anti-trust restrictions; the process and issues in collective bargaining. *Prereq.* 39.303.

49.421 Labor Management Relations 2 (3 q.h.)

An examination of selected parts of a collective bargaining contract, such as seniority, subcontracting, and union security; labor supply and demand; the impact of unions and collective bargaining; employment, wages, and income. *Prereq.* 49.420.

49.422 Labor Management Relations (Intensive) (6 q.h.)

Same as 49.420 and 49.421. (*Not open to students who have taken those courses.*) *Prereq.* 39.303.

49.428 Workshop in Labor Management Relations (3 q.h.)

Study of the special skills and knowledge in the negotiation and use of mediation and/or fact-finding in the collective bargaining agreement field and in interpreting and applying such agreements and the use of arbitration. Student participation in simulated negotiations and grievance processing. *Prereq.* 49.420, 49.421.

49.429 Public Sector Collective Bargaining in the United States (3 q.h.)

Seminar format includes examination of the recent growing activities of employee unions in national, state, and local governments; weighing the public interest, impact on services, and the study of administration of personnel and labor relations in these localities. *Prereq.* 49.421.

49.430 Private Sector Collective Bargaining in the United States (Replaces 49.426) (3 q.h.)

Seminar topics include critical issues and problems affecting unionized employees, their organizations, employers, and the public in the private domestic sector of our economy. Research and preparation of position paper by the student; class discussion. *Prereq.* 49.421.

49.431 International Labor Relations (Replaces 49.427) (3 q.h.)

Seminar comparing and contrasting selected international labor relations systems with that of the United States; examining recent developments such as worker participation and codetermination. Research and preparation of position paper by the student; class discussion. *Prereq.* 49.421.

49.432 Employment Rights 1 - Wage and Hour Law (3 q.h.)

A thorough examination of minimum wage, hours of work, overtime, child labor laws, Fair Labor Standards Act, Davis-Bacon Act, Walsh-Healy Act, rules and regulations pertaining to the same and related areas. *Prereq.* 49.421.

49.433 Employment Rights 2 - Health, Safety, Disability and Workers Compensation Law (3 q.h.)

An in-depth examination of laws dealing with health, safety, disability, and compensation for work-related injuries, Occupational Safety & Health Act, ERISA, Social Security, Unemployment Compensation, Workers Compensation, Federal Employees Liability Act, Jones Act, Longshoremen & Harbor Workers Compensation Act, and other related laws. *Prereq.* 49.432.

49.434 Employment Rights 3 - Fair Employment Law (3 q.h.)

A comprehensive examination of the Old Civil Rights Laws (Sections 1981, 1983, 1985 (3), 1988), Title VI, Title VII, Title IX of the Civil Rights Act of 1964, Age Discrimination in Employment Act, Equal Pay Act, Sections 503, 504 of Rehabilitation Act of 1973, E.O. 11246, Affirmative Action and related areas, and current rulings and Court decisions in this area regarding race, sex, religion, national origin, color, age, and handicap discrimination. *Prereq.* 49.433.

Business Administration Intensive Courses**41.304 Accounting Principles (Intensive)** (6 q.h.)

Same as Accounting Principles 1 and 2.

41.404 Intermediate Accounting (Intensive) (6 q.h.)

Same as Intermediate Accounting 1 and 2. *Prereq.* 41.302.

41.414 Auditing (Intensive) (6 q.h.)

Same as Auditing 1 and 2. *Prereq.* 41.403.

41.421 Cost Accounting (Intensive) (6 q.h.)

Same as 41.405 and 41.406. (*Not open to students who have taken those courses.*) *Prereq.* 41.302.

43.303 Introduction to Marketing (Intensive) (6 q.h.)

One-quarter course covering the same material found in Introduction to Marketing 1 and 2, 43.301 and 43.302.

43.330 Advertising and Sales Promotion (Intensive) (6 q.h.)

One-quarter course covering the same material found in Advertising and Sales Promotion 1 and 2, 43.310 and 43.311. *Prereq.* 43.302.

43.331 Sales Management (Intensive) (6 q.h.)

One-quarter course covering the same material found in Sales Management 1 and 2, 43.322 and 43.323. *Prereq.* 43.302.

43.332 Retail Management (Intensive) (6 q.h.)

One-quarter course covering the same material found in Retail Management 1 and 2, 43.319 and 43.320. *Prereq.* 43.302.

43.336 Marketing Management (Intensive) (6 q.h.)

One-quarter course covering the same material found in Marketing Management 1 and 2, 43.334 and 43.335. *Prereq.* 43.302.

43.340 Professional Selling Skills (Intensive) (Replaces 43.333) (6 q.h.)

Development of the skills necessary for effective selling. Examines customer buying process and the steps in a company's sales process. Prospecting, preparation, presentation, and postsale activities are discussed. Advanced selling techniques such as team selling are also introduced. Focuses on situations where personal selling is a major element of marketing strategy, such as in industrial product, professional service, and high technology marketing. *Prereq.* 43.302.

44.327 Personal Financial Management (Intensive) (6 q.h.)

A one-quarter course covering the same material found in Personal Financial Management 1 and 2. *Prereq.* 44.301.

44.331 Financial Management (Intensive) (6 q.h.)

A one-quarter course covering the same material found in Financial Management 1 and 2. *Prereq.* 44.301.

44.332 Investments (Intensive) (6 q.h.)

A one-quarter course covering the same material found in Investments 1 and 2. *Prereq.* 44.311.

45.305 Management and Organization (Intensive) (6 q.h.)

A one-quarter course covering the same material found in Management and Organization 1 and 2.

45.312 Management Decisions and Policies (Intensive) (6 q.h.)

Please refer to the course descriptions for Management Decisions and Policies 1 and 2. The content of the intensive course is the same, except it is presented twice per week during a single quarter. *Prereq.* 100 q.h.

45.325 Entrepreneurship and Small Business Management (Intensive) (6 q.h.)

Same as 45.323 and 45.324. (*Not open to students who have taken those courses.*)

45.402 Production Management and Manufacturing Systems (Intensive) (6 q.h.)

Same as 45.400 and 45.401. (*Not open to students who have taken those courses.*)

45.453 Purchasing (Intensive) (6 q.h.)

Same as 45.451 and 45.452. (*Not open to students who have taken those courses.*)

47.322 Real Estate Fundamentals (Intensive) (6 q.h.)

Same as 47.320 and 47.321. (*Not open to students who have taken those courses.*)

47.338 Real Estate Financial Analysis (Intensive) (6 q.h.)

Same as 47.328 and 47.329. (*Not open to students who have taken those courses.*)

47.402 Introduction to Hotel and Restaurant Management (Intensive) (6 q.h.)

Same as Introduction to Hotel and Restaurant Management 1 and 2. Not open to students who have taken 47.400 and/or 47.401.

49.303 Law (Intensive) (6 q.h.)

Introduction to the legal system; study of the nature, formation, and essential elements of contracts, including performance and remedies for breach. Analysis of the law of agency, including creation, rights, and duties of principal and agent, scope of authority, relationships to third persons, termination of agency.

Principles and problems associated with the following areas of business law.

Personal property—its nature and characteristics.

Sales—nature of sales and law of sales.

Landlord and tenant—respective rights and duties.

Commercial paper—negotiability, negotiations, checks and notes.

Bankruptcy—outline of Federal bankruptcy, its application and administration.

Business organization—analysis of the corporation, partnerships, and other forms of business organizations.

49.314 Electronic Data Processing (Intensive) (6 q.h.)

Intensifies material of EDP 1 and EDP 2 into a single quarter by doubling frequency of class meetings and pace of nonclass work.

49.344 COBOL Programming (Intensive) A (6 q.h.)

Intensifies material of 49.321 and 49.322 (COBOL Programming 1 and 2) into a single quarter by meeting twice a week for two hours per session. The pace of computer programs written and debugged is also intensified. *Prereq.* 49.311.

49.345 COBOL Programming (Intensive) B (6 q.h.)

Intensifies material of 49.323 and 49.341 (COBOL Programming 3 and Advanced COBOL Programming) into a single quarter by meeting twice a week for two hours per session. The pace of computer programs written and debugged is also intensified. *Prereq.* 39.322 or 49.344.

49.375 Systems Analysis and Design 1 (Intensive) (6 q.h.)

Same as 49.360 and 49.361 (*Not open to students who have taken those courses.*)

49.379 Systems Analysis and Design 2 (Intensive) (6 q.h.)

Same as 49.362 and 49.363. (*Not open to students who have taken those courses.*) *Prereq.* 49.361.

49.402 Human Relations in Organizations (Intensive) (6 q.h.)

Same as 49.400 and 49.401 (*Not open to students who have taken those courses.*)

49.415 Personnel Management (Intensive) (9 q.h.)

A one-quarter course covering the same material found in Personnel Management 1, 2, and 3. (*Not open to students who have taken those courses.*)

49.422 Labor Management Relations (Intensive) (6 q.h.)

Same as 49.420 and 49.421 (*Not open to students who have taken those courses.*) *Prereq.* 39.303

51: Education—Curriculum and Instruction**51.303 Introduction to Education** (3 q.h.)

An overall consideration of education as a profession. Responsibilities of teachers and the legal basis for education in general and at various levels are developed.

51.304 The Instructional Process (3 q.h.)

A general consideration of the process of instruction, including a study of various ways teaching can be analyzed and evaluated. *Prereq.* 51.303 or equiv.

51.305 Curriculum Development (3 q.h.)

Consideration of contemporary curriculum concerns. Ways in which curricula are developed will be explored. Historical precedents and the role of the leader in implementing and revising curriculum in relation to community concerns is a focus of the course. *Prereq.* 51.303 or equiv.

51.306 Methods and Materials (3 q.h.)

A general methods course focusing on the development of instructional strategies, objectives, and procedures of evaluation as they relate to the developmental needs of students. *Prereq.* 51.305 or equiv.

51.307 Humanities Methods and Materials (3 q.h.)

A specific methods and materials course related to the humanities. *Prereq.* 51.306 or equiv.

51.308 Social Studies Methods and Materials (3 q.h.)

A specific methods and materials course related to the social studies. *Prereq.* 51.306 or equiv.

51.309 Student Teaching and Seminar (8 q.h.)

Full-time participation for one quarter in a University-arranged and supervised program designed to provide opportunity for the analysis of learning and teaching and for the demonstration, evaluation, and development of teaching skills. *Prereq.* Many (see page 120.)

62: Boston-Bouve**62.410 Cardiovascular Health and Exercise** (1 cl., 3 lab, 3 q.h.)

A comprehensive cardiovascular medical and physical fitness evaluation, including a resting 12 lead electrocardiogram, an exercise electrocardiogram, resting and exercise blood pressure, an aerobic work capacity evaluation, a pulmonary function test, blood lipid profile, cardiovascular medical examination, coronary risk factor profile and medical history, test of body composition, and tests of muscular strength, endurance, and flexibility. Individual exercise programs will be prescribed based on test results and included in a structured exercise and jogging class three days per week. A weekly cardiovascular health and exercise lecture will be conducted.

62.411 Competitive Running (3 q.h.)

Training and racing techniques, and nutritional practices. Competition in 2.5, 5, and 6.2 mile races, conducted every weekend. Classes meet three times per week in conjunction with the Jogging Club.

62.412 Aerobic Dance (3 lab, 1 q.h.)

Choreographed exercise and dance movements to popular rock, disco, and classical music, designed to produce an aerobic training effect and to develop cardiovascular endurance as well as muscular endurance, muscle tone, improved posture, and flexibility.

62.413 Aerobic Swimming (3 lab, 1 q.h.)

Continuous, rhythmical swimming accompanied by music, designed to produce an aerobic training effect and to develop cardiovascular endurance. Students should have acquired beginning-level skills in the elementary backstroke, breaststroke, and freestyle stroke prior to enrolling.

63: Therapeutic Recreation Services**63.301 Principles and Practices of Therapeutic Recreation 1** (3 q.h.)

Overview of the field, including rationale, history, philosophy, goals, treatment settings, problems of institutionalization, sexual role demands, loss of human dignity, adjunctive therapies, and professional development in therapeutic recreation. Course will conclude with introduction of case method. *Prereq. 30.304 or 30.305 or taken concurrently.*

63.302 Principles and Practices of Therapeutic Recreation 2 (3 q.h.)

Basic medical terminology and in-depth orientation to sensory, neurological, orthopedic and cardiovascular disabilities, prosthetics, and orthotics. A study of attitudinal and societal barriers to the handicapped. *Prereq. 63.301 or permission of consultant.*

63.303 Principles and Practices of Therapeutic Recreation 3 (3 q.h.)

Integrated case method approach to understanding the diversified needs of the person who is handicapped. Psychological, sociological, and emotional impact of disabilities. Designing of individual and group activity. Planning, charting, adapting, and evaluating programs. *Prereq. 63.302 or equiv.*

63.304 Group Dynamics and Leadership 1 (3 q.h.)

Self-awareness, identity, interpersonal and intergroup communications. The group process: factors influencing the need to join the group, motivation to participate, membership screening, size, purpose, behavior patterns, developing rapport, open-ended and closed approaches, group problem solving, brainstorming, conflict resolution.

63.305 Group Dynamics and Leadership 2 (3 q.h.)

Organization, development and structure of groups, team building, role and value clarification, ramifications of change, characteristics and styles of leadership. *Prereq. 63.304 or equiv.*

63.306 Group Dynamics and Leadership (Intensive) (6 q.h.)

Equivalent to 63.304 and 63.305.

63.310 Field Practicum 1 (4 q.h.)

Assigned field experience in a treatment facility under supervision of a qualified professional. Student has the opportunity to learn about the direct service application of classroom theory through observation and participation, in conjunction with written reports, evaluation, and seminars. The experience averages eight hours a week for 12 weeks. *Prereq. 63.303 plus 12 q.h. of professional courses and permission of practicum coordinator. Call 437-2425 to register.*

63.311 Field Practicum 2 (4 q.h.)

Continuation of 63.310. *Prereq. 63.310.*

63.315 Independent Study (4 q.h.)

Empirical research project geared to the individual's area of professional focus. The student is expected to gather, analyze, and evaluate original data and periodically submit progress reports to research adviser. *Prereq. 63.303, plus permission of consultant.*

63.316 Independent Study (4 q.h.)

Continuation of 63.315. *Prereq. 63.315 or equiv.*

63.321 Social Recreation (3 q.h.)

Planning and motivation for social recreation activities; ice breakers, mixers, active and inactive games, adapting and creating joint projects, special events.

63.322 Music Therapy (3 q.h.)

An introduction to the field of music therapy, including an exploration of the historical and current theories and various contemporary techniques and their uses in various clinical settings. Includes a survey of the literature of therapy, with special education, psychiatric, and geriatric areas.

63.323 Arts and Crafts 1 (3 q.h.)

Overview of the creative media available for individual projects. Development of the technical capability to utilize a wide variety of materials in imaginative ways. Compilation of personal arts and crafts manual as reference tool.

63.324 Arts and Crafts 2 (3 q.h.)

Adaptation of creative skills to a therapeutic setting. Developing flexibility and sensitivity to the client's personal needs and interests so that innovative craft projects are designed to meet needs and to maximize their therapeutic benefits.

63.325 Arts and Crafts (Intensive) (6 q.h.)

The equivalent of 63.323 and 63.324.

63.326 Media Resources and Techniques (3 q.h.)

Designing overlays, transparencies, posters, brochures, and other materials. Use of slides and tapes. Learning the operation of P.A. systems, the 16 mm. opaque film strips and overhead projectors, and other photographic devices.

63.327 Therapeutic Use of Dramatics (3 q.h.)

Reinforcement and socialization through pantomime, improvisations, puppetry, skits and stunts, dramatic games,

storytelling, one-act plays, with emphasis on creativity in the therapeutic setting.

63.330 The Process of Aging (3 q.h.)

The psycho-social dynamics of growing old, physical changes as a result of aging, needs of elderly people, attitudes toward work, retirement, and leisure. A study of dependency, remotivation, death and dying, as well as programs and services that add quality to the long life.

63.331 The Nursing Home Experience (3 q.h.)

Exchange of empirical data relating to case experiences and institutional procedures encountered by activity leaders and other practitioners in nursing homes. Feasibility of functional innovations will be discussed in relation to present practices.

63.332 Therapeutic Recreation in Rehabilitation (3 q.h.)

Philosophy, goals, and background in rehabilitation and team membership concepts. The role of therapeutic recreation in the acute and chronic hospital, the rehabilitation center, and various community settings.

63.334 Outdoor Education for the Handicapped (3 q.h.)

Basic goals, processes, and considerations of camping for this special population. Emphasis on social integration with nonhandicapped children. If conducted in the summer session, most classes will be held at the Warren Center in Ashland for more contact with the campers and the Warren program, which is sponsored by the Recreation and Leisure Studies Department of Boston-Bouvé College.

63.335 Activity and Movement Analysis (3 q.h.)

Basic anatomy as it relates to the identification of muscle groups involved in action. Analysis of both the movement and the ingredients of the activity and their suitability with given disabilities. *Prereq.* 18.424

63.336 Mental Illness and Retardation (3 q.h.)

The origins, manifestations, and treatment approaches for mental illness and retardation are explored. Historical and contemporary overviews include treatment settings, case studies, and trends in mental illness and retardation.

63.337 Therapeutic Recreation in Child Development (3 q.h.)

Growth and development patterns, diagnosing early childhood abnormalities; study of the need for play, learning through play, therapeutic values of play, social ethics, safety considerations, and others.

63.340 Leisure Counseling (3 q.h.)

Remedial and developmental process designed to produce behavioral and attitudinal changes in the leisure use patterns of the client. Development of competence in identification, utilization, and referral to appropriate recreational resources. Awareness of cross-cultural recreation patterns. Leisure counseling fundamentals compared in a variety of recreational settings. *Prereq.* 63.303 or one year professional experience or permission of instructor.

63.341 Humanistic Approaches to Recreational Therapy: Noncompetitive and Intergenerational (3 q.h.) (formerly "Eclectic Approaches to Client Treatment")

Provides students with a concrete understanding of the use of trust, imagination, verbal/nonverbal communication, and creative thinking in working with children, senior citizens, and adults of all ages. Designed to increase the student's personal growth, a large variety of behavioral methods will be explored, including: remotivation and reality therapy, the creative arts, intergenerational programming, the group process, motor coordination, sensory awareness, and success-oriented/self-responsibility program development. *Prereq.* 63.301.

63.343 Community Recreation for the Handicapped (3 q.h.)

Developing and initiating a comprehensive special needs program in the community. Integrating efforts with school and special education departments, municipal officials, and parent groups. Need statements, concepts of budgeting and funding, publicity, program awareness and support, and actual presentation of integrative and special programs to be included. Site visits are an integral part of the course. *Prereq.* 63.301.

73: Pharmacy and Allied Health Professions

73.316 Pharmacodynamics (3 q.h.)

A course for registered nurses. Introductory expositions of pharmacologic principles with the pharmacotherapeutics of drug groups and individual drug substances of particular importance in treatment and diagnosis of disease.

86, 87: Health Professions Programs

The following courses are open to all Health Professions students:

86.300 Medical Terminology Survey (3 q.h.)

An introductory survey to medical terminology (*Not open to medical record students.*) *Prereq.* Courses in Anatomy and Physiology.

86.301 Medical Terminology 1 (2 q.h.)

An intensive introduction to medical terminology, including stems, prefixes, and suffixes. Practice in usage. *Prereq.* Courses in Anatomy and Physiology.

86.302 Medical Terminology 2 (2 q.h.)

A more extensive and in-depth consideration of medical terminology. Intended for the medical record specialist. *Prereq.* 86.301.

86.303 Foundations of Medical Science 1 (3 q.h.)

Study of major disease problems in our society and modes of treatment. Discusses organized care, diagnosis, and treatment. Topical emphasis on reproduction, birth, and pediatrics. *Prereq.* Course in Anatomy and Physiology.

86.304 Foundations of Medical Science 2 (3 q.h.)

A continuation of 86.303, emphasizing dental health, dermatology, heart disease, cancer, stroke, blood and lym-

phatic diseases, accidents, musculo-skeletal, respiratory, and gastro-intestinal diseases. *Prereq* 86.303.

86.305 Health Science Statistics (3 q.h.)

Designed to give the health practitioner the opportunity to learn the application of basic statistical techniques to be utilized in gathering, displaying, and interpreting health data. The principles of research design are considered. Agencies involved in collecting statistical data will be reviewed. *Prereq*. *College math course*.

86.306 Hospital Law and Ethics (3 q.h.)

A study of important legal principles and rulings of importance to medical administrative personnel and others. Brief introduction to interpersonal ethics in patient care.

86.307 Hospital Organization and Management 1 (3 q.h.)

Examination and use of general management concepts in a health care context. Case method used to explore marketing, human behavior in organizations, managerial economics, production and operations management, environmental analyses, and policy problems of professional service organizations.

86.308 Hospital Organization and Management 2 (3 q.h.)

Continuation of first quarter, with emphasis on organizational issues and developmental use of long-range planning framework which ties previous areas together. Case method utilized. *Prereq*. 86.307.

86.310, 86.311 Applied Health Care Management 1, 2 (6 q.h.)

Practical application of management principles in health care agencies. Students will examine potential problem areas in health care management settings in order to plan strategies to develop, implement, and evaluate job tasks for an efficient work environment. *Prereq* 86.308.

86.312 Communications for Health Care Personnel 1 (3 q.h.)

A two-part course blending the demands of careful interviewing techniques, thorough record keeping, and accurate and articulate health correspondence. Emphasis placed on effective interaction between patients and health personnel, and between health workers and staff members of health agencies. Deals with the means of effecting good communicative skills with community resources for the benefit of patients.

86.313 Communications for Health Care Personnel 2 (3 q.h.)

Continuation of 86.312. *Prereq*. 86.312 or permission of instructor.

86.320 Principles and Practices of Community Health 1 (3 q.h.)

An overview of specialized health care facilities and their impact on health care delivery, including special focus on ambulatory care, neighborhood health centers, HMO's, and other developing modalities.

86.321 Principles and Practices of Community Health 2 (3 q.h.)

Continuation of 86.320, with emphasis on innovative approaches to meeting and responding to community health needs. *Prereq*. 86.320.

86.322 Principles and Practices of Community Mental Health (3 q.h.)

An introduction to the basic principles and techniques of modern mental health practice.

86.323 Public Health 1 (3 q.h.)

Principles of public health. Organization of health agencies and services.

86.324 Public Health 2 (3 q.h.)

Continuation of 86.323, emphasizing community organization for health services.

86.325 Health Care Delivery (3 q.h.)

A survey course dealing with current and future problems in health delivery.

86.326, 86.327 Contemporary and Controversial Health Care Issues 1, 2 (6 q.h.)

A survey of contemporary health topics. Timely issues are analyzed to differentiate fact and opinion. Designed for individuals desiring authentic information on current health matters. General and mental health topics will be covered.

86.328 Home Health Care (3 q.h.)

Designed to cover all aspects of providing effective community home health care, and the impact of these programs on the health care delivery system.

86.329 Environmental Problems and Health (3 q.h.)

A survey of environmental conditions in land, air, and water. The causes of pollution; effects of man and other life; and a general discussion of current control methods. Particular emphasis on the significance of environmental problems to the individual.

86.330 Health Science Education 1 (3 q.h.)

Introduction to program planning and the development of educational objectives, with special focus on the use and process of evaluating objectives. Presentation of teaching strategies for the professional practitioner.

86.331 Health Science Education 2 (3 q.h.)

Continuation of 86.330, with emphasis on the use of the media and the design of learning packages in health education. *Prereq* 86.330.

86.332 Methods and Materials in Public Health Education (3 q.h.)

An introduction to health education in the public health context. *Prereq*. *Public Health course or permission of instructor*.

86.333 Medical Care and Current Social Problems 1 (3 q.h.)

Seminar course discussing society's organization to deliver medical care services.

86.334 Medical Care and Current Social Problems 2 (3 q.h.)

A continuation of 86.333, discussing topics identified in the first part of the course as matters of great concern in the field of medical care. *Prereq.* 86.333

86.337 Oral Microbiology (3 q.h.)

The qualitative and quantitative composition of the microbiota inhabiting the various ecologic niches of the oral cavity. Methods that have been used to study the oral microbiota are critically evaluated. Ecologic factors such as adhesion, growth factors, and physico-chemical environment controlling the establishment of colonization of organisms in such sites are discussed in detail. The pathogenic potential of plaque microorganisms in terms of caries, periodontal disease, and mixed anaerobic infections will be evaluated. *Prereq.* Chemistry. Microbiology I.

86.338 Advanced Periodontology 1 (3 q.h.)

Study of the diagnosis, treatment, and control of periodontal diseases, starting with a review and updating of the structure and purposes of the periodontal tissues. Emphasis on the extended functions of the dental hygienist in the recognition and treatment of disease, motivation and instruction of the patient, and periodontal maintenance therapy. Topics for discussion include mucogingival problems, furcation involvements, acute gingival infections, root planing, and gingival curettage. Individual study for the preparation of a paper on a topic of special interest to the student. *Prereq.* certificate from a dental hygiene curriculum.

86.339 Advanced Periodontology 2 (3 q.h.)

Continuation of 86.338, to include in-depth study of the special topics selected for term papers in 86.338. Other topics covered include periodontic-endodontic lesions, trauma from occlusion, bruxism, oral manifestations of systemic conditions or treatments such as those produced by diabetes, immunosuppressive drugs, hormones, and effects of aging. Readings based on current journal research reports. *Prereq.* 86.338.

86.340 Long Term Care Administration 1 (3 q.h.)

The organization of care for the long-term acute and chronically ill patient. Goals and purposes of types of long-term care facilities. Budgeting, financing, administration, and services.

86.341 Long Term Care Administration 2 (3 q.h.)

Nursing units; role of the physician. Nursing home-hospital relationships. Therapies. Social Work. *Prereq.* 86.340 or equiv.

86.342 Long Term Care Administration 3 (3 q.h.)

Design of long-term care facilities, capital funding, staffing, budgeting, public relations. *Prereq.* 86.341 or equiv.

86.343 Long Term Care Administration 4 (3 q.h.)

The nature and problems of aging, individual and social considerations. *Prereq.* 86.342 or equiv.

86.344 Long Term Care Administration 5 (3 q.h.)

The care of elderly patients in home, community, and institutions. *Prereq.* 86.343 or equiv.

86.345 Long Term Care Administration 6 (3 q.h.)

Seminar course on the provision and improvement of services to the elderly. *Prereq.* 86.344 or equiv.

86.346 Advanced Health Care Nutrition (3 q.h.)

Food chemistry, nutrition, and physiology as applied to diet. Recent developments in normal nutrition. A critical review of the literature, with emphasis on the experimental data on which the principles of human nutrition are based. Emphasis on the concept for people of all ages. *Prereq.* Basic Nutrition course.

86.347 Advanced Pharmacology (3 q.h.)

Available for students who have completed 86.381 or its equivalent.

86.348 Health Care Financing 1 (3 q.h.)

Introduction to health care accounting, control, and finance, including third-party reimbursement of hospitals.

86.349 Health Care Financing 2 (3 q.h.)

Continuation of first quarter course, including a four-step process for control (planning, programming, budgeting, and control) and financial issues (capital budgeting, cash budgeting) and other financial analyses.

The following courses are offered by Arts and Sciences and Business Administration and are available to Health Professions students:

39.341 Medical Economics (3 q.h.)

Examination and discussion of the following topics: health care trends in the United States; causes of increases in medical care costs; supply and training of health care personnel; the nation's need for physicians, nurses, pharmacists, and other allied health personnel; the quality of medical care; economics of health insurance plans; consumer demand for health care, medical facilities, professional and semiprofessional personnel.

49.373 Information Processing in Medicine (3 q.h.)

A nontechnical survey of the importance and potential of computers in medicine: medical records, clinical reporting systems; automated laboratories; on-line monitoring, research needs; medical administration requirements. Analysis of the content and interactions of medical information sub-systems. Implications of computerization of various medical activities; equipment selection; organizational considerations. (Offered odd-dated years) (Available in Boston only) *Prereq.* 49.310 or 49.314

The following courses are open to Medical Record students only

86.370 Medical Record Science 1 (6 q.h.)

Introduction to medical records; history of the medical record, and medical record forms. A study of the professional medical record administrator and his/her relationship to the health facility. A study of the numbering, filing,

and security of medical records. Quantitative analysis of the record is stressed; didactic and laboratory experiences incorporated. *Prereq.* 80 q.h. including 18.424, 18.425, 18.426, 86.301, and 86.302.

86.371 Medical Record Science 2 (6 q.h.)

Principles of law as related to patient care and medical records. Rules of privileged communication and the release of information to agencies are stressed. Medical staff and committees are covered. Accreditation regulations are considered; didactic and laboratory experiences incorporated. *Prereq.* 86.370.

86.372 Medical Record Science 3 (6 q.h.)

Study of the basic principles for compiling statistics for hospital and health facilities. Preparation of reports and vital statistic reporting are taught. Classification theory and the principles of disease coding are covered. Special indexes are reviewed; didactic and laboratory experiences incorporated. *Prereq.* 86.371.

86.353 Organization of the Medical Record Department 1 (3 q.h.)

The study of the hospital, patterns of organization, lines of responsibility and authority, medical staff and administrative organization, departmental functions, and organization. The planning aspects of management and the study of fundamental principles and successful practices in getting office work accomplished are stressed. *Prereq.* 86.372, 86.362 and 86.375 or permission of Clinical Coordinator.

86.354 Organization of the Medical Record Department 2 (3 q.h.)

Office management problems and their solution, conceptive framework for the operation of essential management function, facilities, solutions, and contributions to the office. The study of the controlling function in the Medical Record Department. Quality control, time standards, cash controlling, budgeting and office manuals. Work simplification and systems as it applies to the Medical Record Department. *Prereq.* 86.353.

86.373 Medical Record Science 4 (6 q.h.)

A study of health care legislation, quality assurance, utilization review, PSRO's, planning agencies and their impact on record management, an introduction to specialized record systems; didactic and laboratory experiences incorporated. *Prereq.* 86.372.

86.374 Medical Record Science 5 (6 q.h.)

Specialized record systems continued. Topics include ambulatory care, home care, and long-term care. These topics are approached in terms of information management and quality assurance. Discussion of new problems presented by changing patterns in health care delivery. Review of current literature. *Prereq.* 86.373.

86.358 Medical Record Computer Science (3 q.h.)

Electronic data processing applications in the medical record environment. The study of the hospital information system. Application of computers in hospital methodology

and assessing the need for EDP in medical record environment. Trends in the state of the art and future prospects for medical record management. *Prereq.* 49.310, 86.374

86.375 Applied Medical Record Science 1 (3 q.h.)

Clinical practice in medical record science and management techniques at one or more of the affiliated hospitals. *Prereq.* 86.372.

86.360 Applied Medical Record Science 2 (2 q.h.)

Clinical practice in medical record science and management techniques at one or more of the affiliated hospitals and health facilities. *Prereq.* 86.375.

86.376 Applied Medical Record Science 3 (3 q.h.)

Clinical practice in medical record science and management techniques at one or more of the affiliated hospitals. *Prereq.* 86.360.

86.362 Hospital Management for Medical Record Administrators (3 q.h.)

An introduction to the basic management principles designed so that the health care facility will be the major source of example and case study (for Medical Record students only.)

86.368 Topics in Health Records (3 q.h.)

A seminar on current issues in health documentation. Open to health records students.

86.363 Special Topics in the Health Professions 1 (3 q.h.)

Independent study course to enable the student in health science, health management, and health records to focus on areas of special relevance to his/her professional goals. Materials will be developed with the aid of a faculty adviser to reflect the student's special background and needs. Arrangements should be made with the faculty adviser prior to registration for the course. (*Not open to Medical Laboratory Science students.*)

86.364 Special Topics in the Health Professions 2 (3 q.h.)

A continuation of 86.363. (*Not open to Medical Laboratory Science students.*)

86.365 Special Topics in the Health Professions 3 (3 q.h.)

A continuation of 86.364 (*Not open to Medical Laboratory Science students.*)

86.366 Special Topics in Health Professions 4 (3 q.h.)

A continuation of 86.365. (*Not open to Medical Laboratory Science students.*)

86.380 Basic Nutrition (3 q.h.)

For students in the health field enrolled in their first nutrition course. Provides an overview of nutrition as a young, growing science. The course's focus will be on current basic scientific knowledge of nutrition and how this knowledge can be applied to guide an individual toward making appropriate food choices. It is assumed the student will possess a high school background in chemistry and biology.

86.381 Basic Pharmacology (3 q.h.)

The major purpose of this introductory course is to supply sound and current knowledge of the major classes of drugs. Wherever possible, a presentation of the mode of action, common side effects, dosage, pharmaceutical forms, rate and route of administration, and known interactions and toxicities will be made of the most commonly and currently used drugs to treat certain diseases or specific signs and symptoms. *Prereq.* Chemistry, Anatomy, and Physiology or permission of instructor.

The following courses are open to Radiologic Technology students only:

86.420 Radiologic Technology Orientation 1 (3 cl., 3 q.h.)

A study of the history of x-radiation, radiology department organization, medical terminology, patient care and nursing procedures, and contrast media.

86.421 Radiologic Technology Orientation 2 (3 cl., 3 q.h.)

A study of medical and surgical diseases. *Prereq.* 86.420.

86.422 Radiologic Science 1 (4 cl., 4 q.h.)

A survey of the basic concepts of physics, units of measurement; Newton's law of motion; work, energy; atomic theory of matter; electric currents; magnetism; generators; motor production; control of high voltage and x-ray production. *Prereq.* 10.527 or equiv.

86.423 Radiologic Science 2 (4 cl., 4 q.h.)

Interaction of x-rays and matter, modern x-ray tubes, x-ray circuits, simulator experiments, fluoroscopic systems; properties of solids, liquids, and gases. Temperature and heat transfer and their application. *Prereq.* 86.422.

86.424 Principles of Radiology 1 (4 cl., 4 q.h.)

A study of practical, basic radiation protection, and principles of positioning patient for radiographic studies.

86.425 Principles of Radiology 2 (4 cl., 4 q.h.)

A study of the principles of precise body positioning for detailed radiographic studies. *Prereq.* 86.424

86.426 Radiologic Photography and Exposure 1 (4 cl., 4 q.h.)

A study of the basic principles of image formation; electromagnetic spectrum; x-ray tube construction; factors controlling radiographic quality. *Prereq.* 10.527 or equiv.

86.427 Radiologic Photography and Exposure 2 (4 cl., 4 q.h.)

A study of accessory items used to improve radiographic quality; in-depth methods of protection for patient and personnel; film critique and mathematical exposure concepts. *Prereq.* 86.426 and 86.422.

86.434 Advanced Radiologic Technology 1 (3 cl., 3 q.h.)

A study of special procedures involving cardiac vascular procedures, neuroradiology, lymphangiography, and other

related procedures. *Prereq.* Core curriculum in Radiologic Technology or its equivalent. Available late afternoon.

86.435 Advanced Radiologic Technology 2 (3 cl., 3 q.h.)

A continued study of special procedures. *Prereq.* 86.434 Available late afternoon.

86.648, 86.649, 86.650, 86.651 Radiology Practicum (12 q.h.)

Application of theoretical principles by performing radiographic procedures under supervision. Assigned homework to be part of lesson plans received while at the hospital, and lectures presented at the hospital and University. A.M.A. requirement minimum 2 hrs./week

86.628 Imaging Modalities (3 q.h.)

Surveys imaging modalities other than diagnostic x-ray, including xerography, thermography, nuclear medicine, radiation therapy, computerized axial tomography, and ultra sound. *Prereq.* 86.427. Available late afternoon.

86.629 Radiation Protection—Radiobiology (3 q.h.)

Covers atomic structure, properties of radioactive materials, units of radiation, long-term/short-term biological effects, survey instruments, reduction of exposure to patients, Federal x-ray standards, and radiopharmaceuticals. *Prereq.* 86.427. Available late afternoon.

Medical Laboratory Science courses open to all students:

87.300 Medical Laboratory Science Orientation (2 q.h.)

Scope, responsibilities, opportunities, and educational requirements for the medical laboratory science professions.

87.301 Quality Control (3 q.h.)

The development of quality control programs in each medical laboratory specialty. Applications of statistical methods to medical laboratory quality control programs.

87.302 Basic MLS Electronics and Instrumentation (2 q.h.)

A course in electricity with coverage through introductory electronic circuits. Emphasis directed to medical laboratory instrumentation and related electrical processes of measurement.

87.303 Seminar in Medical Technology (3 q.h.)

Current topics in medical technology. Required readings and presentations by students. Guest lecturers. *Prereq.* Permission of instructor.

87.310 Hematology (1 cl., 3 lab., 3 q.h.)

Basic hematological techniques, including discussion of the differential smear and observation of the normal morphology of human red cells, white cells, and platelets. *Prereq.* 18.412 or equiv. (Laboratory fee) (Not for Medical Technology or Hematology majors.)

87.311 Morphologic Hematology 1 (1 cl., 3 lab., 3 q.h.)

Morphologic and etiologic classification of the anemias. Related diagnostic tests will be discussed. *Prereq.* 87.310 or equiv. (Laboratory fee)

87.312 Morphologic Hematology 2 (1 cl., 3 lab., 3 q.h.)
Studies of pathologic and physiologic deviations of the white cell series as observed in leukemias and infections. Some animal hematology is included. *Prereq.* 87.311 or *equiv.* (Laboratory fee)

87.313 Epidemiology 1 (3 q.h.)
Basic concepts in epidemiology. The distribution in determinants of diseases and injuries in human populations. Descriptive and analytical epidemiology studies will be included

87.314 Epidemiology 2 (3 q.h.)
Study of the microbiological distributions in determinants of infectious diseases. Hospital epidemiology

The following courses are open to Medical Laboratory Science students only:

*Courses offered in the evening at day college tuition rates.

***87.101 Basic Medical Laboratory Science** (3 cl., 4 lab., 8 q.h.)

This is an introductory course in basic medical laboratory science, including methods, principles, and theories; includes urinalysis and basic hematology. *Prereq.* 8 q.h. of college biology and chemistry

***87.102 Basic Medical Laboratory Hematology** (1 cl., 3 lab., 2 q.h.)

Principles and procedures of basic coagulation and blood cell morphology. *Prereq.* 87.101.

***87.103 Basic Medical Laboratory Immunohematology** (1 cl., 3 lab., 2 q.h.)

Basic principles in immunohematology and related techniques, with particular emphasis on those procedures used in blood banking. *Prereq.* 8 q.h. of college biology and chemistry

***87.104 Basic Medical Laboratory Clinical Microbiology** (3 cl., 3 lab., 4 q.h.)

Basic principles and techniques of organism isolation; cultivation and identification of staphylococci, streptococci, enterobacteria, and neisseria. Clinical specimens will be examined and identification schema developed. *Prereq.* 87.101 and 8 quarters of college biology.

***87.105 Basic Medical Laboratory Science Chemistry and Instrumentation** (3 cl., 3 lab., 4 q.h.)

Principles, procedures, and techniques of basic clinical chemistry and instrumentation. *Prereq.* 87.101 and 12.427.

***87.211 Hemostasis** (1 cl., 3 lab., 2 q.h.)

Advanced studies in the hemostatic mechanisms. Platelet function analyses, identification of factor deficient samples, and problem-solving situations.

***87.213 Immunohematology** (1 cl., 3 lab., 2 q.h.)

Advanced studies in antigen-antibody detection and problem solving of immunohematological tests. Discussion of related hematologic disorders. *Prereq.* 87.103 or 87.153.

***87.222 Histochemistry** (1 cl., 3 lab., 2 q.h.)

The use of histochemistry stains to differentiate among various hematologic disease. Stains to include peroxidase, sudan black B, NBT, esterases, and immunofluorescence. *Prereq.* 87.312 or 87.252.

Courses open to Cytotechnology students only:

A special tuition rate of \$75 per credit applies to the following Cytotechnology courses.

87.508 Introduction to Cytotechnology (2 cl., 2 q.h.)

A review of cell structure, principles of microscopy, and staining techniques. Anatomy and physiology of the female reproduction system and study of the non malignant cytology of the female genital tract. (Laboratory fee)

87.528 Cytopathology 1 (2 cl., 2 q.h.)

Cytopathology and clinical aspects of cervical dysplasia, carcinoma-in-situ, and invasive squamous cell carcinoma. Consideration of endometrial and endo-cervical carcinoma, other genital tract cancers, and radiation effect. *Prereq.* 87.508. (Laboratory fee)

87.538 Cytopathology 2 (2 cl., 2 q.h.)

Benign and malignant cytology of the respiratory and gastrointestinal systems, correlated with the anatomy and physiology. Considerations of clinical aspects. Special collection techniques. Emphasis on cancer of the lung and stomach. *Prereq.* 87.528

87.558 Cytopathology 3 (2 cl., 2 q.h.)

Study of benign, atypical, and malignant cells exfoliated from various portions of the urinary tract, in serious effusion, cerebrospinal fluid, and breast secretions. *Prereq.* 87.538.

87.518 Applied Cytology 1 (at Hospital) (4 q.h.)

The microscopic evaluation and screening of cytological smears and smears from cervical dysplasia, carcinoma-in-situ, invasive malignant tumors of the female genital tract.

87.548 Applied Cytology 2 (at Hospital) (4 q.h.)

The microscopic evaluation and screening of cytological smears from the respiratory tract, gastrointestinal tract, urinary tract, and from body fluids. Continuing evaluation of cytological smears from the gynecological tract.

87.578 Applied Cytology 3 (at Hospital) (4 q.h.)

The microscopic evaluation and screening of cytological smears from all parts of the body. Practical experience in genetic cytology.

87.618 Applied Cytology 4 (at Hospital) (2 q.h.)

The microscopic evaluation and screening of cytological smears from various body sites. Effects of radiation and of chemotherapy; diagnosis of suspicious and hormonal conditions; cytological observations in pregnancy; their clinical significance.

87.568 Cytogenetics and New Concepts (2 cl., 2 q.h.)

Clinical and cytological aspects of genetics, including genetic counseling. Special uses of cytology. Cell re-

search techniques, cancer. Epidemiology and current concepts related to cytotechnology. *Prereq 87.558 or permission of instructor* (Laboratory fee)

87.598 Special Topics (2 cl, 2 q.h.)

Special projects in cytology, cytopathology, or cytotechnology investigated or reviewed and reported by student. Written and oral presentation required. *Prereq 87.558 or permission of instructor*

87.608 Seminar: Cytopathology—Criteria and Correlations (4 cl., 2 q.h.)

Presentation, discussion, and interpretation of benign, suspicious, and hormonal conditions. The cytological diagnostic criteria of malignant tumors from various body sites and their histopathological correlation.

90: Career Planning and Development

Self-Assessment and Career Development

90.401 Self-Assessment and Career Development 1 (3 q.h.)

Understanding the concept of life/career planning and its practical implications for future education and/or work. Students complete a self-assessment, including an evaluation of their competencies and skills, and receive training in career decision making with practice in the use of field survey techniques to test their interest in specific career areas. An overview of job campaigning, including an introduction to résumé preparation and interviewing techniques.

90.402 Self-Assessment and Career Development 2 (3 q.h.)

An expanded understanding of life/career planning. Intensive practice in several job campaign skills, including résumé building, interviewing for information, networking, and interviewing for a job. Students can become aware of how these and other job campaign strategies can be used to map an individual approach to career development. Emphasis is placed on the relationship of strategic career decisions to life planning, in terms of both short-term and long-term goal development.

Core Career Courses for Women

*Title change only. Students who have taken this course under its former title should not enroll.

These courses are available on an open and equal opportunity basis to all students who wish to enroll.

90.301 Planning a Business Career* (3 q.h.)

Helps students develop career decision-making skills. Students participate in exercises to assist in identifying and evaluating their interests, values, skills, and competencies. Resources and strategies are presented to help women research various business careers, including practice in the area of field survey techniques to test their interest in specific career areas. Résumé preparation and interviewing techniques are also introduced.

90.305 Women in Business Organizations 1: Structural and Behavioral Fundamentals* (3 q.h.)

Identification of effective management practices and the inhibiting factors that impede women from acquiring them. The importance of effective communication and dealing with criticism will be stressed. Validity of common behavioral assumptions will be tested, including women's fears of success, inadequate motivation, social exclusion, disinclination to take charge or withstand pressure.

90.306 Women in Business Organizations 2: Leadership and Communications* (3 q.h.)

The dynamics of leadership as they relate to the successful woman manager: managing conflict, securing control, instituting change, motivating, disciplining, and gaining respect. Distinguishing supervisory from management performance standards. Role playing and case studies will assist in the development of leadership and problem-solving capabilities. *Prereq 90.305 or equiv*

90.310 The Elements of Management (3 q.h.)

Provides a knowledge base of the technical, quantitative, and specialized areas of management. Familiarizes the student with the language and operational complexities of the manager's job and raises her level of diagnostic, analytic, and integrating competence. The course is divided into four three-week modules: Module I: Economics and Finance; Module II: Budget and Accounting; Module III: Marketing; Module IV: Information Systems.

94: Law Enforcement

94.301 Human Rights in Corrections (3 q.h.)

Consideration of the special practices and problems in the protection of human rights in the institutional environment, legal and practical aspects.

94.302 Basic Statistics in Law Enforcement (3 q.h.)

Basic statistical information procedures and operations relating to law enforcement; interpretation of criminal statistics; crime rates, unrecognized crime, non-reporting, recidivists' rates; individual statistics; evaluation of records; research and data on specialized services.

94.303 Correctional Counseling (3 q.h.)

Basic concepts and principles of counseling, individual and group therapy carried on in the correctional field and institutional services; case study and projects.

94.304 Criminal Investigation and Case Preparation 1 (3 q.h.)

General investigation techniques; collection and preservation of evidence and information; consideration of particular crimes, including arson, sexual offenses, larceny, burglary, robbery, forgery, and homicide.

94.305 Criminal Investigation and Case Preparation 2 (3 q.h.)

Conduct of raids, surveillance and undercover operations, methods of preparing a case for court, specialized scientific methods, exercises involving techniques of prosecution and cross-examination. *Prereq 94.304*

94.306 Comparative Police Systems (3 q.h.)

A study of existing police systems in other jurisdictions; examination of the organization, administration, and practices in police agencies in the United States, Europe, and the United Kingdom.

94.307 Introduction to Industrial Security (3 q.h.)

The historical, philosophical, and legal basis of security; a survey of administrative, personnel, and physical aspects of the security field.

94.308 Interviews and Interrogations 1 (3 q.h.)

Interviewing of victims, witnesses, informants, and complainants; demonstration, study, discussion, and practice of techniques and procedures.

94.309 Interviews and Interrogations 2 (3 q.h.)

Techniques for legally acceptable questioning of suspects and persons in custody; laws governing interrogation practices; demonstrations, class exercises, and assigned projects. *Prereq.* 94.308.

94.311 Advanced Correctional Practices 1 (3 q.h.)

Diagnosis and treatment of the drug addict and the alcoholic offender at both juvenile and adult levels; a study of these and related kinds of personal self-abuse as to causation and treatment.

94.312 Advanced Correctional Practices 2 (3 q.h.)

Case studies of persons confined; their past and present environment and relationship; consideration of purposeful resolves or regressions. A study and evaluation of correction-psychiatric facilities for the disordered offender, including the aggressive, the assaultive, and the violent subject. *Prereq.* 94.311.

94.314 Traffic Safety and Control 1 (3 q.h.)

A study of the state of the art of highway safety; research; traffic accident investigation; prevention; rescue, automated system of vehicular traffic accident and moving violation data collection; analysis and utilization; speed control; speed zoning techniques; radar, vascar, laws, rules, and regulations.

94.315 Traffic Safety and Control 2 (3 q.h.)

An in-depth study of traffic law enforcement, techniques of selective enforcement; traffic surveys; engineering, safety education, and evaluation of current traffic programs. *Prereq.* 94.314

94.316 The Law and Institutional Treatment (3 q.h.)

The process of law from arrest of offender through release in its relation to correctional principles and practices; functions of police, defense, prosecution, and courts; legal documents related to commitment.

94.317 Comparative Correctional Systems (3 q.h.)

A study of correctional systems and methods in selected jurisdictions; examination of the organization, administration, and practices in the United States and foreign countries.

94.318 Law Enforcement Identification and Records 1 (Criminal Histories System) (3 q.h.)

Records and systems utilization; survey of forms, files, procedures, and standards, with an introduction to the criminal histories systems concept and the applicability of C.O.R.I. (criminal offenders record information) in law enforcement record keeping

94.319 Law Enforcement Identification and Records 2 (Criminal Histories System) (3 q.h.)

Theories and practices in personal identification principles; survey and evaluation of present and new identification techniques; coupled with the introduction to public records, fair information practices and exceptions in law enforcement. *Prereq.* 94.318.

94.320 Police Public Relations (3 q.h.)

The principles of sound public relations for the entire police operation; writing, public speaking, conferences, and all news media; consideration of police image and public opinion.

94.321 Police Community Relations (3 q.h.)

A survey of the role and function of police in intergroup relations; human relations and minority groups; responsibilities of police with civil rights, civil disorders, and public protection.

94.322 Research Methods in Criminal Justice (3 q.h.)

A research project related to some specific police or correctional interest or operation, in consultation with the faculty adviser. Course meets at discretion of the instructor. Project paper required for grade.

94.323 The Patrol Function 1 (3 q.h.)

The planning process related to the administration of the patrol function. Consideration of theoretical and operational aspects of various patrol systems; random patrol, response force, split force, team policing, probability theory, and the relationship between patrol and crime levels.

94.324 The Patrol Function 2 (3 q.h.)

A continuation of 94.323, with emphasis on the goals and objectives of police patrol management models. Discussion and analysis of manpower, work load, response time, patrol communications, preventive strategies, and inputs and outputs of patrol systems evaluated in quantitative form. *Prereq.* 94.323.

94.325 Introduction to Criminalistics 1 (3 q.h.)

A survey of the elements of microscopy, spectroscopy, and chemistry as applied to trace evidence in criminal investigations; responsibilities of technician, investigator, and others.

94.326 Introduction to Criminalistics 2 (3 q.h.)

Toxicology and serology; procedures related to other physical evidence; laboratory demonstrations and practical exercises. *Prereq.* 94.325.

94.327 The American Correctional System (3 q.h.)

A critical survey of the correctional field, covering probation, institutions, and parole as to historical development, program content, and current problems and needs.

94.328 Social Deviance 1 (3 q.h.)

A consideration of the social problems of social disorganization, mental disorders, drug addiction, alcoholism, suicide, and sexual behavior.

94.329 Social Deviance 2 (3 q.h.)

Continuing consideration of world's population crisis, race and ethnic relations, family disorganization, work and automation, poverty and disrepute, war and disarmament. *Prereq.* 94.328.

94.330 Treatment of Offenders 1 (3 q.h.)

The concept of treatment and corrections; history; classification; training, education and guidance; treatment methods; inmate society; health and social services.

94.331 Treatment of Offenders 2 (3 q.h.)

Therapy, psychiatric and psychological considerations, case studies, evaluation of comparable methods. *Prereq.* 94.330.

94.332 Correctional Administration 1 (3 q.h.)

Correctional processes and services, standards, personnel and principles of management; allocation of resources, training of staff. Study of regular and special programs, volunteers, and outside contracts.

94.333 Correctional Administration 2 (3 q.h.)

A further study of the principles of management, sentence reduction, discharge planning and work release administration. Types of institutions; compacts; regional concepts, planning, organizing, controlling and directing corrections, budgeting. *Prereq.* 94.332.

94.335 Investigative Report Writing (3 q.h.)

Report content and writing, exercises in accurate terminology and concise reporting, interpretation and evaluation of information, practical report-writing projects.

94.336 Police Supervision (3 q.h.)

The police supervisor's role in discipline, interdepartmental relations; problem handling and personnel policies; problems in supervisory relationships; wages, grievances, morale, and safety.

94.337 Police Work with Juveniles (3 q.h.)

The role of the police in delinquency prevention, with emphasis on theory, administration, control, treatment, confinement, community resources, and relationships with the public and the juvenile court.

94.338 Criminology 1 (3 q.h.)

An introduction to the study of crime from the perspective of classical and contemporary criminological theories. In particular, attention is given to biological, psychological, and sociological approaches to the explanation of crime.

94.339 Criminology 2 (3 q.h.)

A continuation of Criminology 1, with emphasis on the causes of crime and the relationship between law and crime. Specific implications of prevention, rehabilitation, and treatment are considered in depth. *Prereq.* 94.338.

94.340 Delinquency Prevention (3 q.h.)

A survey of delinquent behavior, causation, and delinquency prevention programs; seminar projects for dis-

cussion of specific problems and general principles in establishing delinquency prevention services.

94.341 Probation and Parole Practices 1 (3 q.h.)

The probation officer; pre-sentence investigation; conditions of probation; effectiveness, administrative aspects, and prediction methods; relationship to community.

94.342 Probation and Parole Practices 2 (3 q.h.)

The parole officer; conditions of parole; supervision; effectiveness; administrative relationships; relationships to the community, court and law enforcement agencies; relationships of probationer and parolee to rehabilitative, social, and family services; consideration of recidivism and aftercare. *Prereq.* 94.341.

94.343 Law Enforcement Management and Planning 1 (3 q.h.)

Philosophy and theories of management in law enforcement, studies of organization from the administrator's viewpoint, including control, efficiency, effectiveness, and discipline.

94.344 Law Enforcement Management and Planning 2 (3 q.h.)

A survey of the administrator's role, including special activities and responsibilities; administrative planning, civilian personnel, including recruitment, selection, evaluation; training; budgets; management records; interpersonal communications; auxiliary services; evaluation of present and future management systems. *Prereq.* 94.343.

94.345 Juvenile Corrections 1 (3 q.h.)

A study of police, detention, petition, and hearings related to juveniles; juvenile court procedures, philosophy, and terminology; adjudication.

94.346 Juvenile Corrections 2 (3 q.h.)

Social workers, probation officers, judges, psychologists, and psychiatrists with relation to juveniles; institutions; aftercare; prevention. *Prereq.* 94.345.

94.350 Document Control (3 q.h.)

A detailed study of procedures for handling and control of classified and other sensitive information; a survey of control systems from manual to semi-automated systems using data processing equipment.

94.351 Industrial Fire Prevention (3 q.h.)

Principles and practices of fire safety, including organization and management responsibility, property conservation, safeguards for construction, fire control apparatus and functions, engineering and scientific data on fires and related perils.

94.352 Physical Security 1 (3 q.h.)

The basic foundations for security in industry, banking, transportation, utilities, and other nongoverning operations; physical requirements and standards.

94.353 Physical Security 2 (3 q.h.)

Implementation of security, study of inanimate aspects, including alarm and surveillance devices; study of animate aspects of protection. *Prereq.* 94.352.

94.354 Retail Security (3 q.h.)

The operation of security departments, including functions of mercantile establishments; dishonest employees; shoplifters; management and public relations; receiving, shipping, and warehousing; special laws and procedures.

94.355 Bank Security Measures (3 q.h.)

An in-depth study of the principles and practices of security measures for banks and other financial institutions and the preparation of rules establishing minimum standards under current Federal and state legislation.

94.356 Seminar in Security (3 q.h.)

An analysis of current problems in security, such as growth patterns, salary structures, training and education, existing weaknesses; field trips, individual study assignments, and required oral and written reports.

94.357 Seminar in Correctional Practices (3 q.h.)

An analysis of current problems in corrections, designed to meet the needs and interests of specific groups of students, practitioners, supervisors, and administrators of correctional programs.

94.358 The National Law Enforcement Seminar (3 q.h.)

An annual, concentrated exploration of current viewpoints, varied solutions, innovative procedures, and critical analyses in the issues facing law enforcement, correctional practices, and security, drawing on exceptionally qualified local and national figures. A research paper under the direction of a faculty adviser is required for credit. (Not offered every year.)

94.359 Seminar in Hospital Security (3 q.h.)

The function of protection in the health industry; medical security administration, including study of health care providers; trends in hospital law; security from injury, fire and loss in the medical world; security methodology for safeguarding specialty areas; the security role in mass casualty management and emergency preparedness; the concept of professionalism; community liaison; and patient attitudes toward security.

94.360 Current Security Problems (3 q.h.)

An analysis of special problem areas such as security education and training, community relations, white-collar crime, drug abuse, theft control, shoplifting, document control, subversion and sabotage, protection of classified information, control of proprietary information and business espionage, labor problems, civil disturbances, and natural and man-made disasters.

94.361 Law Enforcement Mathematics 1 (3 q.h.)

A review of elementary algebra; algebraic expressions and operations, equations, word problems, and solutions to mathematical problems in their practical applications in the criminal justice field. Probability, trigonometry, statistics, ratio, and proportion.

94.362 Law Enforcement Mathematics 2 (3 q.h.)

Further review; fundamental operations, measurement and computation, solutions of linear and quadratic equations. Equations of motion and energy, permutations, combi-

nations. Application of these principles will be applied to most areas of law enforcement. *Prereq.* 94.361.

94.364 Seminar in Law Enforcement—(Youth Crime Control) (3 q.h.)

The criminality and deviance of those between the juvenile and adult age. Consideration is given to: concepts and characteristics of the youthful offender; the role of the family in youth crime; the generation gap; violence of youth hooliganism; drug addiction of youth; ordinary crimes of youth; the youth subculture and culture conflict; the role of mass media and education in youth crime; the concepts of freedom and justice in the youth culture; treatment of youthful offenders; and the state of youth crime control in foreign countries.

94.365 Seminar in Law Enforcement—(Victimology) (3 q.h.)

Criminal-victim relationship, with emphasis on victim-precipitated crimes and compensation to the victims. Consideration is given to: concept and significance of "victimology," time, space, sex, age, and occupational factors in criminal-victim relationships; victims of murder, rape, other violent crimes, and property crimes; victim-typology; the public as victim; restitution to victims of crime; compensation to victims of crime; and the functional responsibility of the victim.

94.366 Seminar in Law Enforcement—(International Crime Control) (3 q.h.)

Crimes touching upon more than one country, with emphasis on international criminal law principles, treason, and espionage. Concentration is given to: the concept of law in its comparative aspects; customs; treaties; international conventions; "comity"; culture conflicts; the "international personality"; the "attempt clause"; the Belgian approach; the Oxford approach; asylum, extradition; international ordinary criminals; political criminals; piracy (on sea and in the air); war criminals; genocide; international courts; League of Nations; United Nations; international criminal statistics; Interpol, the Soviet-type spy-schools; the history of American Intelligence.

94.368 Seminar in Law Enforcement—(Operational Intelligence) (3 q.h.)

Designed to give the student the opportunity to theoretically understand the value and function of an intelligence unit, including planning, directing, organizing, financing, and other salient features of the administration of these units. Emphasis is placed on organized crime, subversive activities, and liaison programs as they apply to a modern police agency.

94.370 Seminar in Law Enforcement—(Collective Bargaining) (3 q.h.)

The history and background of collective bargaining in the public sector as it affects members of the law enforcement field; initial establishment of rights of labor; labor legislation—Federal and state; preparation for negotiation, resolutions of impasses, final agreement, and operation of the contract.

94.371 Man, Law, and Society 1 (3 q.h.)

A general analysis of the way in which major changes occur in the established practices of legal and social organizations and communities. Particularly concerned with the part played by legal institutions in initiating, controlling, and directing or assisting in such changes.

94.372 Man, Law, and Society 2 (3 q.h.)

An introduction to the social science concepts and methods in their current and potential application to social and legal problems. Aims to acquaint the student with a variety of social research concepts and methods of special utility in investigating diverse types of social law-related problems. *Prereq.* 94.371.

94.374 Seminar in Law Enforcement—(Interviewing Practicum) (3 q.h.)

Advanced interrogation methods and procedures; techniques of persuasion; conditioning (negative and positive); the polygraph, its history and methodology; the established rules and procedures required for current diagnosis of truth and deception; the evaluation of the contemporary methods of international law enforcement agencies.

94.375 Seminar in Law Enforcement—(Organized Crime) (3 q.h.)

The nature and problems of organized crime; causes and effects; comparative and historic roots; the activities, organization, and economics; possible solutions; the scope and techniques in combating organized crime.

94.376 Seminar in Law Enforcement—(Minorities and the Urban Crisis) (3 q.h.)

An investigation of the ethnic and racial origins and characteristics of the American people; the interaction, conflicts, and possibilities of adjustment between the dominant society and minority groups, particularly in contemporary urban settings; the role and function of police in their interrelationship with minority groups.

94.377 Seminar in Law Enforcement—(Criminal Behavior) (3 q.h.)

An examination of crime and criminal behavior as a social phenomenon. Three principle divisions: sociology of law and its effect; criminal etiology and the scientific analysis of the causes of crime; evaluation of the various rationales of detention as a crime-control factor.

94.378 Seminar in Law Enforcement—(Prosecutive Development) (3 q.h.)

Lecture and discussion relating to the professional requirements of the modern police officer in the United States; oral testimony; the entire corpus delicti and all other related matters in proper form and sequence; the trial; testimony and the jury; conduct on the witness stand; opposition counsel; the defense of entrapment; opinion testimony; confessions; prospective witnesses; legal standards and the police.

94.379 Seminar in Law Enforcement—(Forensic Laboratory) (3 q.h.)

Crime laboratory organization and utilization of special equipment for the analysis, interpretation, classification,

and identification of physical evidence obtained in crime scene searches. The transportation, storage, and security of physical evidence and the effect of the results, coupled with the preparation of exhibits for courtroom presentation. *Prereq.* 94.326. (Laboratory fee)

94.380 Seminar in Law Enforcement—(Intervention Strategies and Tactics for Law Enforcement Counseling Techniques) (3 q.h.)

Basic concepts and principles of intervention as a social work method. Nature of therapeutic relationships, principles of communication. Diagnostic assessment of the person-problem-situation configuration. Goal-setting process. Ego-supportive procedures and use of community resources.

94.381 Civil Liberties and the Police 1 (3 q.h.)

An in-depth preparation for the officer facing the practical problems of enforcing the law without breaching the civil rights of the accused and bystanders; individual readings, lectures, group discussions, and preparations from Massachusetts and national interest cases; many incidents pertinent to the actions of the people involved with these problems will be investigated and studied; constitutional interpretation and limitations are the guidelines for the course.

94.382 Civil Liberties and the Police 2 (3 q.h.)

Several Supreme Court cases are followed from the time of the call, to the confrontation, arrest, examination in court, appeals, and the direct statements on the problem by jurists of the highest courts. The last section of the term ties in the latest criminal law and civil rights act changes including, but not limited to, criminal justice and no-knock laws and the latest Civil Rights Act. *Prereq.* 94.381.

94.383 Seminar in Law Enforcement—(Drugs) (3 q.h.)

Designed to acquaint the student with the needs of law enforcement personnel in the problematic area of drug abuse; the law, society classification, distribution, identification, and the effects of drugs.

94.384 Seminar in Law Enforcement—(Executive Development) (3 q.h.)

The role of the police administrator within the managerial structure. Special problems unique to the law enforcement executive, decision making, policy formation, planning, controlling, communicating, and directing. A consideration of case studies and surveys will be utilized.

94.385 Seminar in Law Enforcement—(Mental Health and the Police) (3 q.h.)

A study of the roles of law enforcement and mental health services. Diagnosis of the triggering mechanisms of behavioral disorders and the suicidal phenomenon; psychiatric and psychological considerations; case studies and the legal process.

94.386 Seminar in Law Enforcement—(Data Processing) (3 q.h.)

An introduction to automated systems utilized in the field of law enforcement; basic program concepts; filing and

sorting techniques; available input and output storage media; types and sources of data communications and applications.

94.387 Administration of Justice 1 (3 q.h.)

A survey of the evaluation of justice from the earliest times, developed historically, with particular emphasis on Western justice and American justice, including the roles played by the judiciary, with stress on due process and the constitutional guarantees.

94.388 Administration of Justice 2 (3 q.h.)

An analysis of the various groups and professions in the American justice system. Emphasis is fixed on human relations, efficiency, current trends, and the future role of the American criminal justice system. *Prereq.* 94.387.

94.389 Civil Law in Criminal Justice 1 (3 q.h.)

Civil matters such as defamation, negligence, assault and battery, false confinement, trespass, conversion, and agency relationships.

94.390 Civil Law in Criminal Justice 2 (3 q.h.)

Civil matters such as the law of contracts, bailments, domestic relations, and business relationships that should be known to and distinguished by law enforcement personnel. *Prereq.* 94.389.

94.391 Criminal Law 1 (3 q.h.)

Exploration of the major problems of criminal law as a device for controlling socially undesirable behavior. It is intended to give one a working knowledge of the basic questions of public policy involved in the administration of criminal justice and the legal principles of determining criminal liability. Includes a consideration of specific crimes, elements of a crime, parties to a crime, and defenses to a crime.

94.392 Criminal Law 2 (3 q.h.)

Consideration of vital constitutional and statutory concepts, including self-incrimination, search and seizure, law of arrest, criminal procedure and responsibility, confessions right to counsel, and conduct of trial in the District, Superior, Appellate, and Federal Courts. *Prereq.* 94.391.

94.393 Evidence and Court Procedure 1 (3 q.h.)

Rules of evidence; principles of exclusion; evaluation and examination of evidence and proof.

94.394 Evidence and Court Procedure 2 (3 q.h.)

Competency, consideration of witnesses, laws of search and seizure, court procedures, moot court exercises. *Prereq.* 94.393.

94.395 Fire Investigation and Arson 1 (3 q.h.)

A study of the elementary chemistry of combustion involving sources of ignition, fuels, the nature and behavior of gases and their toxicity. The combustion properties of nonsolid fuels as opposed to the combustion properties of solid fuels are considered. Consideration is also given to explosions associated with fires. Discussion of the socio-economic aspects of fire, including the pyromaniac and his or her physiological involvement.

94.396 Fire Investigation and Arson 2 (3 q.h.)

A concentrated approach is taken in dealing with the firebug and his or her sociological orientation. A discussion of carbon, hydrogen, and oxygen as major elements in all fires and the flameless ignition effect. Methods of fireproofing are also considered and references made to various types of building materials, as well as the role of pyrolysis. Fire patterns of structural fires and asphyxiation, along with the legal aspects of arson, are also considered. *Prereq.* 94.395.

94.397 Law Enforcement Fiscal Management (3 q.h.)

The various budgeting systems and their application to law enforcement organizations, including: the line-item budget, programmed budget, performance budget, and the planned programmed budget system; development of sound fiscal policy; appropriation of funds; tax base revenue systems; distribution of public monies; budget request, expenditures; and auditing procedures.

94.398 Massachusetts Criminal Law (3 q.h.)

A comprehensive study of Massachusetts Criminal Law and its application by law enforcement officers. Areas of study include: common law, criminal statutes, annotated laws, criminal case law, Supreme Court decisions, and motor vehicle law.

94.399 Alcohol Problems in Law Enforcement (3 q.h.)

Acquaints the student with the current state of knowledge on society, culture, and drinking patterns; the variety of alcohol problems that confront peace officers; discussion of the range of solutions available.

94.400 Honors Program 1 (4 q.h.)

Prereq. Approval of the Dean.

94.401 Honors Program 2 (4 q.h.)

Prereq. 94.400.

94.402 Honors Program 3 (4 q.h.)

Prereq. 94.401.

94.403 Security Administration 1 (3 q.h.)

The historical, philosophical, and legal basis of security operations. A study of various security methods, utilizing personnel, equipment, and procedures.

94.404 Security Administration 2 (3 q.h.)

The organization, administration, and management of the security function; the systems approach to security operations, utilizing personnel and equipment resources. *Prereq.* 94.403.

94.406 Legal Aspects of Security Operations (3 q.h.)

The study of areas of law relevant to the security professional, including related aspects of criminal, civil, regulatory, and labor law.

94.407 Introduction to Government Security Programs (3 q.h.)

An introduction to various government security programs, including the Department of Defense, Industrial Security Program (DCASR), and the Nuclear Regulatory Commis-

sion Security Standards, and an analysis of the policy and legal basis for such programs.

94.408 Independent Studies 1 (3 q.h.)

Faculty-guided research in individually selected topics relating to the criminal justice system.

94.409 Independent Studies 2 (3 q.h.)

A continuation of faculty-guided research as described in Independent Studies 1. *Prereq* 94.408.

94.410 Logical and Ethical Foundations of Decision Making 1 (3 q.h.)

An introduction to the basic principles of logical thought, aimed at showing ways of arriving at a well-founded conclusion, of criticizing and testing for errors in an argument, and of recognizing arguments presented by others. Focus is on real-life situations and practical decision making.

94.411 Logical and Ethical Foundations of Decision Making 2 (3 q.h.)

A study of basic theories concerning questions of morality and justice, especially as they apply to the concerns of those in the criminal justice system, carrying over into an examination of various viewpoints concerning questions of punishment, i.e., why people are punished, and under what conditions a wrongdoer is to be excused from punishment. *Prereq* 94.410.

94.412 Logical and Ethical Foundations of Decision Making 3 (3 q.h.)

Examination of a variety of areas that are important from a moral and social point of view and of concern to the criminal justice system, such as victimless crimes, the nature and function of the law, and the nature of the professions. Real-life application of the questions in these fields will be stressed. *Prereq* 94.411.

94.413 Seminar in Law Enforcement (Grantsmanship) 1 (3 q.h.)

Designed to familiarize the participants with the orderly sequence of organizational steps required in providing the institutional framework necessary for preparation and submission of applications to granting agencies. Major topics include: Omnibus Crime Control and Safe Streets Act of 1968; functions of the Law Enforcement Assistance Administration; grant application strategy, planning, and research.

94.414 Seminar in Law Enforcement (Grantsmanship) 2 (3 q.h.)

A continuation of Grantsmanship 1, with an emphasis on evaluation, monitoring, and auditing grant programs. Strategies for different types of grants (HUD, EDA, SBA, CDBG, CETA) and private foundations and other nonprofit organizations. *Prereq* 94.413.

94.415 Domestic Violence (3 q.h.)

Central focus is on the effects of family abuse and violence. The role of the police, the courts, and the human service worker in their interrelationships with the family membership. Topics include the changing role of parents and children in today's world, battered wives, child abuse and

neglect, sexual abuse, effects of divorce, alcohol and drugs, children's rights, government and private agencies concerned with neglect and abuse, case studies, and the laws and legal process involved in domestic violence. Open to students in law enforcement, criminal justice, and the helping professions associated with the course topic.

94.499 Field Work in Law Enforcement, Correctional Practices and Security (6 q.h.)

An opportunity for students to become familiar with practice in their major field. To be arranged with department consultant or major adviser, prior to registration. *Prereq*. *Major in Law Enforcement, Correctional Practices, or Security, and completion of 18 q.h. in Law Enforcement, Correctional Practices, or Security*

Law Enforcement Intensive Courses

97.401 Criminal Law (Intensive) (6 q.h.)

Combination of 94.391 and 94.392.

97.402 Evidence and Court Procedure (Intensive) (6 q.h.)

Combination of 94.393 and 94.394.

97.403 Civil Law in Criminal Justice (Intensive) (6 q.h.)

Combination of 94.389 and 94.390.

97.404 Civil Liberties and the Police (Intensive) (6 q.h.)

Combination of 94.381 and 94.382.

97.405 Interviews and Interrogations (Intensive) (6 q.h.)

Combination of 94.308 and 94.309.

97.406 Traffic Safety and Control (Intensive) (6 q.h.)

Combination of 94.314 and 94.315.

97.407 Law Enforcement Identification and Records (Intensive) (6 q.h.)

Combination of 94.318 and 94.319.

97.408 Introduction to Criminalistics (Intensive) (6 q.h.)

Combination of 94.325 and 94.326.

97.409 Social Deviance (Intensive) (6 q.h.)

Combination of 94.328 and 94.329.

97.410 Law Enforcement Management and Planning (Intensive) (6 q.h.)

Combination of 94.343 and 94.344.

97.411 The Patrol Function (Intensive) (6 q.h.)

Combination of 94.323 and 94.324.

97.412 Criminal Investigation and Case Preparation (Intensive) (6 q.h.)

Combination of 94.304 and 94.305.

97.413 Criminology (Intensive) (6 q.h.)

Combination of 94.338 and 94.339.

97.414 Treatment of Offenders (Intensive) (6 q.h.)

Combination of 94.330 and 94.331.

97.415 Probation and Parole Practices (Intensive) (6 q.h.)

Combination of 94.341 and 94.342.

97.416 Fire Investigation and Arson (Intensive) (6 q.h.)

Combination of 94.395 and 94.396.

97.417 Advanced Correctional Practices (Intensive)
(6 q.h.)

Combination of 94.311 and 94.312.

97.418 Correctional Administration (Intensive) (6 q.h.)

Combination of 94.332 and 94.333.

97.419 Law Enforcement Mathematics (Intensive) (6 q.h.)

Combination of 94.361 and 94.362.

97.421 Man, Law, and Society (Intensive) (6 q.h.)

Combination of 94.371 and 94.372.

97.422 Administration of Justice (Intensive) (6 q.h.)

Combination of 94.387 and 94.388.

97.423 Logical and Ethical Foundations of Decision Making (Intensive) (9 q.h.)

Combination of 94.410, 94.411, and 94.412.

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- Ruth M. Aaron, M.S.
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Drama/Speech
Ralph Jordan Textiles
- Bruce Bunten, B.S.*
Personnel and Industrial Rel.
Stone & Webster Eng. Corp.
- Edward L. Burke, J.D.
Transportation
Commonwealth of Massachusetts
- Alfred C. Burneister, B.S.
Information Systems
Digital Equipment Corp.
- Charles F. Burt, M.B.A.*
Accounting
H.J. Stabile & Son Inc.
- Richard W. Burton, B.S.
Earth Science
Brockton High School
- Jack S. Bushinsky, M.B.A.
Accounting
Zayre Corp.
- Nelson M. Butters, Ph.D.*
Psychology
Boston VA Hospital
- Conrad P. Caligaris, Ph.D.*
Economics
Northeastern University
- Russell J. Call, Ed.D.
Mathematics
Northeastern University
- Mark S. Callahan, M.A.
Political Science
Northeastern University
- Harold J. Callanan, Ph.D.
History
Northeastern University
- William A. Calore, B.S.
Management
Hartford Area Vocational
- Charles Calusdian, M.B.A.
Industrial Management
Raytheon Co.
- David S. Calverley, Ph.D.*
Psychology
Dacal Ltd.
- Meredith E. Cameron, R.R.A., B.S.
Medical Technology
Northeastern University
- Frank R. Campagnoni, B.A.
Psychology
Northeastern University
- Ballard C. Campbell, Jr., Ph.D.
History
Northeastern University
- James A. Canino, M.A.
Anthropology/Sociology
Northeastern University
- Enrico C. Cappucci, B.S.
Law Enforcement
Boston Police Dept.
- Brian R. Caputo, M.B.A.*
Management Sciences
Raytheon Co.
- Ralph A. Cardarelli, M.S.
Industrial Management
Digital Equipment Corp.
- Christina Carpenter, M.B.A.
Accounting
McCormack & Dodge
- Charles J. Carr, M.B.A.
Accounting
New Can. Co. Inc.
- Janet H. Carr, M.A.
English
Burlington School Dept.
- John M. Carr, B.S.
Earth Science
Museum of Science
- William F. Carr, LL.B.
Law
Sloane, Puopolo & Carr, Attys.
- Philip F. Carrigan, Jr., M.A.
Psychology
Northeastern University
- Patrick R. Carroll, Esq., J.D.
Health Professions
Massachusetts Hospital Assoc.
- William S. Carroll, Esq., J.D.
Health Professions
Town of Watertown
- Norman J. Cartmill, M.B.A.*
Management
Revere Copper & Brass Inc.
- Arthur F. Casavant, M.B.A.
Purchasing
Raytheon Co.
- Dennis F. Casey, B.S.
Law Enforcement
Casey's Invest. Agency, Inc.
- Robert W. Casey, M.Ed.
Drama/Speech
Burlington High School
- Richard J. Cass, J.D.*
Law Enforcement
Attorney at Law
- Sharon G. Cassavant, Ed.D.
English
Northeastern University

*Denotes senior lecturer as of October, 1980.

- Christopher J. Cassidy, M.S.*
Information Systems
Town of Brookline
- Stephanie L. Catalan, M.A.*
Anthropology/Sociology
Massasoit Community College
- Dianne M. Caughey, M.A.
Economics
Northeastern University
- Donna M. Chadwick, M.S.
Therapeutic Recreation
Emmanuel College
- Ruth B. Chamberlain, M.A.
Library Science
Plymouth Public Library
- Arthur P. Chamian, M.B.A.*
Marketing
Champion Associates, Inc.
- Charles R. Chaplin, B.S.
Law Enforcement
Marshfield Police Dept.
- Kenneth Chernack, M.B.A.
Information Systems
Digital Equipment Corp.
- Jerry D. Cherrington, M.A.
Philosophy/Religion
New England Mutual Life Ins. Co.
- John T. Chirban, Ph.D.
Psychology
Harvard University
- John A. Chmielinski, M.Ed.*
Law Enforcement
Massachusetts Dept. of Corrections
- John Chrune, B.S.
Management
Dunkin Donuts Inc.
- Anthony Cicerone, M.A.
Economics
Plymouth Carver Int. School
- William J. Cintolo, J.D.
Law Enforcement
Attorney at Law
- David E. Clapp, M.Ed.
Biology
Massachusetts Audubon Society
- Thomas H. Clark, M.A.
Reading
Northeastern University
- Fred W. Clarridge, Jr., M.S.
Earth Science
Wellesley Jr. High School
- Paul Clemente, Jr., M.S.
Accounting
Boston University
- George P. Clinch, B.S.*
Information Systems
American Mutual Ins. Co.
- William M. Cloran, J.D.*
Law Enforcement
Dept. of Public Utilities
- Gerald F. Cody, B.A.
Marketing
Smith Barney Harris Upham
- Cathy Cogen, B.A.
Psychology
Northeastern University
- William G. Coggan, Ph.D.*
Personnel and Industrial Rel
Massasoit Community College
- Edward S. Cohen, M.A.*
Marketing
EDP Corp. (TEC)
- Leila R. Cohen, Ph.D.
Psychology
Northeastern University
- Marcia B. Cohen, M.S.W.
Social Welfare
Northeastern University
- Steven J. Cohen, B.S.
Management
Sheraton-Tara Hotel
- David M. Coit, M.B.A.
Finance
First National Bank of Boston
- John R. Colbert, Jr., M.B.A.
Management Sciences
Prime Computer, Inc.
- Alexander M. Colby, M.B.A.
Finance
State Street Bank
- Patricia A. Cole, Ph.D.
Philosophy/Religion
Annalee Collins, R.R.A., B.S.
- Health Professions*
Northeastern University
- William J. Collins, M.B.A.
Industrial Management
Defense Contracts Admin
- Richard J. Comings, M.A.*
History
Northeastern University
- Elizabeth M. Cornstock, Ph.D.
Psychology
U.S. Army Natick Res. and Dev. Labs
- John Conathan III, J.D.
Law
Self Employed
- John J. Condon, Jr., M.B.A.
Accounting
AVCO Systems Division
- Elizabeth M. Congdon, M.A.
History
Peabody School System
- Norman J. Conklin, B.S.*
Information Systems
Honeywell Info. Systems
- John J. Connelly, B.S.
Law Enforcement
Massachusetts Trial Court
- William G. Connelly, B.S.
Law Enforcement
Metropolitan District Police
- Thomas F. Connerty, M.B.A.
Information Systems
Digital Equipment Corp.
- Claire S. Connor, B.A.
Health Professions
Northeastern University
- Joseph N. Connors, M.P.A.*
Political Science
Northeastern University
- Mary F. Cook, M.A.
Therapeutic Recreation
Commonwealth Center
- Harold F. Cooper, Ph.D.
Anthropology/Sociology
Northeastern University
- John S. Corcoran, M.S.
English
Orion Research
- Robert L. Cord, Ph.D.
Political Science
Northeastern University
- Dyer Cornell, M.B.A.
Finance
First National Bank of Boston
- Richard S. Corrente, M.B.A.*
Management
Raytheon Co.
- Edward V. Cosgrove, Ph.D.
Biology
Boston State College
- William H. Costello, Ph.D.
Psychology
Tufts New England Medical Center
- James W. Cottom, M.A.
History
Massasoit Community College
- David C. Coughlin, M.P.A.
Political Science
Al Nellum and Associates
- Paul D. Coughlin, M.B.A.*
Finance
First National Bank of Boston
- Richard J. Coughlin, M.S.
Library Science
Boston College
- Thomas F. Coveney, M.B.A.
Information Systems
Stone & Webster Eng. Corp.
- James M. Cox, M.Ed.*
Law Enforcement
Boston Police Dept.
- Wallace Coyle, Ph.D.
English
Northeastern University
- John E. Coyne, J.D.
Management
Self Employed
- Ralph J. Crandall, Ph.D.
History
N.E. Hist. Genealogical Society
- Bryan D. Craven, B.S.
Information Systems
General Electric Co.
- Salvatore A. Crisafulli, M.B.A.*
Information Systems
Arthur D. Little
- Robert D. Crofts, M.A.
Economics
Salem State College
- Peter V. Crone, M.A.
Law Enforcement
Brockton Police Dept.
- John F. Cronin, Jr., M.B.A.*
Accounting
Raytheon Co.
- Joseph W. Cronin, B.S.
Management Sciences
Sanders Associates
- Hugh J. Crossland, M.B.A.*
Law
Crossland & Aresty
- Brian C. Crowley, M.B.A.*
Accounting
Amcon Corp.
- John F. Cullen, J.D.
Law Enforcement
Donovan Cullen & Helkey Att. at Law
- Joseph I. Cullen, M.Ed.*
Law Enforcement
Massachusetts Dept. of Youth Services
- David M. Culver, Ph.D.*
History
Helen M. Curley, M.A.
- Law Enforcement*
Patricia Dacey, M.Ed.
Women's Career Program
Y.W.C.A.
- Albert C. D'Amato, M.Ed.
English
Northeastern University
- Miriam F. D'Amato, M.A.
English
Arnold E. Daum, B.A.*
- Marketing*
Arnold E. Daum Co.
- Charles Daum, Esq., J.D.*
Marketing
Consultant
- Donna M. Davis, M.A.
History
ABT Associates
- Richard J. Davis, M.A.*
Law Enforcement
Belmont School Dept.
- Willie J. Davis, J.D.*
Law Enforcement
Attorney at Law
- John C. Decker, M.B.A.
Personnel and Industrial Rel
Harvard Trust Co.
- John R. Deltrick, M.A.*
English
Becker Junior College
- James L. Delaney, B.S.
Law Enforcement
Retired

- Patricia A. Delgado, M.Ed.
Reading
Northeastern University
- Dante J. DeMichaelis, J.D.*
Law Enforcement
Middlesex County Dist. Attys. Office
- Robert J. Dennehy, M.B.A.
Accounting
C.P.A.
- Mabel T. Denunzio, M.Ed.
Law Enforcement
Salem State College
- Arthur J. Depietro, M.A.
Law Enforcement
Boston Juvenile Court
- Paul J. Derby, M.B.A.*
Information Systems
Honeywell Info. Systems
- Joseph B. deRoche, M.F.A.*
English
Northeastern University
- Stephen R. Derosier, M.B.A.
Management
Northeastern University
- Francis E. Devin, M.P.A.
Law Enforcement
Boston Police Dept.
- Brian S. Dextradeur, B.S.
Management Sciences
Polaroid Corp.
- Arthur F. Diette, B.S.
Law Enforcement
Lowell Police Dept.
- Clark J. DiFronzo, M.A.
History
Northeastern University
- Edward J. Dillon, M.B.A.*
Personnel and Industrial Rel.
Raytheon Co.
- Howard T. Dimmick, M.Ed.
Earth Science
Town of Stoneham
- Ernest S. Dinisco, J.D.
Law Enforcement
Middlesex County Asst. District Attorney
- Francis J. DiSabatino, M.A.
Chemistry
Quincy High School
- Philip S. DiSalvio, M.Ed.
Health Professions
Wedgwood Nursing Home
- Melinda M. diSessa, Ph.D.*
Philosophy/Religion
- Arnold R. DiSilvestro, M.B.A.
Finance
- Theodore Distaso, Jr., M.P.A.
Political Science
U.S. Govt. Dept. of Defense
- Rosemarie M. Dittmer, M.A.
English
- Alan F. Dodd, Esq., J.D.
Political Science
Hickox & Dodd
- Edward Doherty, B.S.
Law Enforcement
Boston Police Dept.
- Stanley J. Doherty, Jr., Ph.D.
English
Northeastern University
- Robert A. Dolan, M.Ed.
Law Enforcement
Research Publishing Co., Inc.
- Marie Dolansky, Ph.D.
Mathematics
Northeastern University
- Michael B. Donham, M.B.A.
Personnel and Industrial Rel.
Center House, Inc.
- Edward M. Donie, M.S.
Information Systems
Compugraphic
- William J. Donnelly, Jr., B.S.
Law Enforcement
Registry of Motor Vehicles
- John A. Donovan, M.A.
Economics
Northeastern University
- Timothy R. Donovan, Ph.D.
English
Northeastern University
- Marcia A. Dorey, M.S.
Library Science
Aliston Congregational Church
- Michael C. Dorman, M.A.
Anthropology/Sociology
Northeastern University
- Nadine V. Dowling, M.B.A.
Personnel and Industrial Rel.
Northeastern University
- Nancy L. Dowling, M.Ed.
Reading
Northeastern University
- James F. Downey, Ph.D.
Management
Leventhol & Horwath
- Rose A. Doyon, M.A.
English
- C. Paul Dredge, M.A.
Anthropology/Sociology
Northeastern University
- John Dreimanis, M.A.
Political Science
Northeastern University
- Joan F. Drexellus, Ph.D.
Drama/Speech
Northeastern University
- Claire M. Driscoll, M.Ed.
Mathematics
Northeastern University
- John M. Driscoll, M.A.
Economics
Massachusetts Dept. of Public Utilities
- John P. Driscoll, Esq., J.D.
Real Estate
Self Employed
- Richard E. Driscoll, J.D.*
Law Enforcement
Attorney at Law
- Walter T. Driscoll, Jr., M.P.A.
Law Enforcement
Scituate Police Dept.
- William T. Driscoll, M.B.A.
Finance
Foxboro Co.
- David C. Dronsick, M.A.
Earth Science
Commonwealth of Massachusetts
- Neil F. Duane, M.S.
English
Hewlett Packard Co.
- Edward L. Dube, M.B.A.*
Management
Edward L. Dube-Mgmt. Services
- Ardyn E. Dubnow, M.B.A.*
Accounting
Northrop Corp.
- Terrance J. Dugan, M.B.A.
Finance
Shawmut Bank of Boston N.A.
- Laura W. Dunn, M.A.
English
- Edward A. Duprez, Jr., M.B.A.
Management
Framingham School Dept.
- Paul J. Duval, M.B.A.
Information Systems
State Exec. Off.—Admin. and Finance
- William C. Dwyer, M.B.A.
Management
Sherwood Labor Corp.
- Richard T. Dyro, Ed.D.
English
- Norman J. Ebsary, M.P.A.
Law Enforcement
Boston Police Dept.
- William T. Edgett, M.A.
Personnel and Industrial Rel.
Northeastern University
- Ralph W. Edwards, M.S.
Health Professions
Bay State P.S.R.O.
- Andrew E. Efsthiau, B.A.
Information Systems
Commonwealth of Massachusetts
- David M. Ehrmann, B.S.
Drama/Speech
Hanover High School
- Robert L. Ehrmann, M.D.
Health Professions
Boston Hospital for Women
- James H. Elgin, M.B.A.*
Information Systems
Digital Equipment Corp.
- Stephen E. Elmont, A.S.
Management
Creative Gourmets Ltd.
- Mohamed El-Sayed, M.S.
Chemistry
Northeastern University
- Hoda A. El-Wakil, M.S.
Chemistry
Northeastern University
- Louis J. Ennis, M.B.A.
Management
Brandeis University
- J. Clive Enos, B.S.*
Personnel and Industrial Rel.
Raytheon Co.
- Herbert J. Eskowitz, M.A.
Economics
Northeastern University
- Benedetto Fabrizi, Ph.D.*
Modern Language
Northeastern University
- Robert M. Fahey, M.Ed.
Information Systems
Commercial Union
- Sheryl L. Fairchild, B.S.
Therapeutic Recreation
Malden Hospital
- G. Michael Fallet, M.S.
English
Digital Equipment Corp.
- Eugene F. Fallon, M.B.A.*
Finance
GenRad, Inc.
- Edward J. Falvey, M.B.A.
Management
Massachusetts Companies Inc.
- Andrew C. Fantasia, M.B.A.
Accounting
Charles E. Depisa & Co.
- Daniel M. Fasulo, M.P.A.
Law Enforcement
Haverhill Police Dept.
- Richard J. Faulstich, A.B.
Personnel and Industrial Rel.
Raytheon Co.
- Richard J. Feeney, B.S.
Law Enforcement
Metropolitan District Police
- Irwin Feigelman, B.S.*
Accounting
U.S. Government
- James F. Ferreira, M.B.A.
Information Systems
M.B.T.A.
- James J. Ferriter, M.B.A.
Health Professions
Carney Hospital
- William A. Ferson, M.A.
Economics
U.S. Dept. of Labor
- Barbara Ann P. Filo, M.A.
History
- Charles A. Findley, Ph.D.
Drama/Speech
Northeastern University

*Denotes senior lecturer as of October, 1980.

- Francis X. Finigan, M.Ed.*
Earth Science
Winchester Public Schools
- Albert J. Finney, Jr., B.S.*
Accounting
Raytheon Co.
- Robert S. Finocchiaro, B.A.
Chemistry
Northeastern University
- William H. Fisher, M.Ed.
Anthropology/Sociology
Northeastern University
- Edward A. Fitzgerald, M.A.
Political Science
Northeastern University
- Leo J. Fitzgerald, M.B.A.*
Industrial Management
General Electric Co.
- Kevin T. Fitzpatrick, M.B.A.*
Finance
Boston Public Library
- J. Joseph Fitzsimmons, Jr., M.B.A.
Management
Polaroid Corp.
- Maurice C. Flaherty, M.P.A.
Law Enforcement
Boston Police Dept.
- Richard E. Flaherty, B.S.
Law Enforcement
Metropolitan District Police
- David E. Floreen, M.P.A.
Political Science
Massachusetts Bankers Assoc.
- Eileen M. Flynn, B.S.
Health Professions
Massachusetts General Hospital
- Leo M. Flynn, M.B.A.
Real Estate
Leo Flynn Real Estate & Appraising
- Peter E. Flynn, J.D.
Real Estate
Dept. of the Attorney General
- William B. Flynn, Ph.D.
Psychology
Merrimack Valley College
- Ellen F. Foley, M.A.
History
Suffolk University
- Martin E. Foley, M.P.A.
Law Enforcement
Massachusetts State Police
- Robert E. Foley, M.B.A.
Accounting
Self Employed
- Robert J. Forrest, Esq., J.D.
Accounting
Robert J. Forrest P.C.
- Armand L. Fortin, B.S.
Purchasing
Honeywell Info. Systems
- James Foss, Jr., LL.B.
Personnel and Industrial Rel.
Federal Med. & Concl. Service
- Douglas G. Foster, M.Ed.*
Earth Science
Jeremiah E. Burke High School
- Gale P. Foster, B.S.*
Marketing
Samson Ocean Systems, Inc.
- Heidi A. Foster, M.Ed.
English
Boston University
- Robert M. Fox, M.B.A.*
Marketing
Gerber Electronics
- Walter Fox Tree, M.F.A.
Art
Boston State College
- Laura L. Frader, Ph.D.
History
Northeastern University
- Susan H. Francis, M.A.
English
- Thomas B. Francis, M.P.A.
Personnel and Industrial Rel.
City of Boston
- Howard H. Freedman, M.S.*
Accounting
Raytheon Co.
- Melvin W. Friedman, M.B.A.*
Management
M.W. Friedman Assoc.
- Daniel C. Frio, M.A.
History
Wayland High School
- Martha R. Fuller, M.S.
English
Northeastern University
- Norbert L. Fullington, Ph.D.
History
Northeastern University
- Vincent J. Furlong, M.A.
Industrial Management
U.S. Government
- Brian A. Gagne, B.S.
Real Estate
Baybank Middlesex
- W. Arthur Gagne, Jr., M.B.A.*
Management
Worcester Art Museum
- Kenneth W. Gagnon, B.S.
Law Enforcement
Massachusetts Dept. of Public Safety
- Bernard F. Galat, B.S.
Health Professions
University Hospital
- Esther M. Gallagher, D.D.S.
Medical Technology
Tufts University
- J. Paul Gallagher, M.Ed.
English
Arthur R. Gallerani, Jr., M.B.A.
- Management*
Middlesex Community College
- Frank T. Gallo, M.Ed.
Health Professions
Lowell Community Health Center
- Gerald V. Galuardi, B.A.
Health Professions
New England Deaconess Hospital
- Mary E. Gamerman, B.A.
Biology
Northeastern University
- A. Newell Garden, M.A.
Journalism
Raytheon Co.
- Rawle W. Garner, M.S.*
Law Enforcement
New England Business Corporations
- Kenneth R. Garrett, M.A.
Philosophy/Religion
Salem State College
- Ingrid Garriga, M.A.
Anthropology/Sociology
La Alianza Hispana Inc.
- John D. Gavin, M.S.
Law Enforcement
Waltham District Court
- Stanley S. Gawlinski, B.S.
Law Enforcement
Boston Police Dept.
- Paul C. Gay, J.D.*
Law
Barron & Stadfeld
- Jonathan Gbur, M.B.A.
Transportation
Boston & Maine Corp.
- Gerard J. Geant, M.B.A.
Real Estate
Sandra E. Geer, M.A.
- Psychology*
Boston State College
- Samuel S. Geller, M.B.A.
Accounting
McCormack & Dodge Corp.
- John R. Geraghty, M.B.A.*
Management
IBM Corp.
- Anne M. German, Ph.D.
Information Systems
Shawmut Bank of Boston
- Burton W. Gerrig, J.D.
Law Enforcement
Revere Community Health Center
- Adrian T. Gilbert, B.S.
Biology
Northeastern University
- Emanuel M. Gilbert, B.S.
Marketing
E.M. Gilbert Assoc.
- Edwin S. Giles, Jr., B.S.*
Information Systems
Massachusetts Teachers Assoc.
- Ruth Gilleran, M.B.A.
Accounting
Gillette Co.
- Gregory Gillis, M.A.
Biology
Bunker Hill Community College
- Alan B. Gladstone, B.S.
Accounting
Alan Gladstone, C.P.A.
- Audrey E. Glassman, B.S.
Drama/Speech
Daniel D. Glatthorn, M.B.A.
- Industrial Management*
Boston Housing Authority
- James L. Glinos, M.Ed.*
Personnel and Industrial Rel.
Glinos Associates
- Ronald C. Glover, J.D.
Personnel and Industrial Rel.
U.S. Dept. of Labor
- Maureen D. Godino, M.A.
English
Northeastern University
- Randolph P. Goetze, Ed.M.
Drama/Speech
Stephen J. Golburgh, Ed.D.
- Psychology*
Self Employed
- Leonard B. Goldberg, B.A.
Biology
Northeastern University
- Linda S. Goldberg, C.A.G.S.
English
Robert L. Goldberg, M.B.A.*
- Management*
John Hancock Dist. Inc.
- Judith B. Golden, M.B.A.
Health Professions
Harvard Community Health Plan
- Frederick T. Golder, Esq., LL.B.
Personnel and Industrial Rel.
Cherwin and Glickman
- Stan Goldman, J.D.
Political Science
Commonwealth of Massachusetts
- Harold M. Goldstein, Ph.D.
Economics
Northeastern University
- Howard I. Goldstein, J.D.
Law
Attorney
- M. Alvin Goldstein, A.B.*
Information Systems
Information Inc.
- Robert J. Goldstein, M.A.
Anthropology/Sociology
Northeastern University
- Susan J. Goldwitz, A.M.
English
Northeastern University
- Judith R. Goodman, M.A.*
English
Leon M. Goodman, M.B.A.*
- Personnel and Industrial Rel.*
New England Telephone
- Stephen Goodyear, M.A.
Modern Language
Hull Public Schools

- Bernard L. Gordon, M.S.*
Earth Science
Northeastern University
- Daniel D. Gordon, M.A.
Economics
Salem State College
- Mary Jane Gorton, Ed M
Art
Animal Aid Inc.
- Leslie C. Gosule, B.S.
Accounting
C.P.A.
- Alan E. Gould, M.S.
Accounting
Jaycor
- Daniel Z. Gould, M.B.A.
Industrial Management
BTU Engineering Corp.
- David F. Grace, M.A.*
English
Lasell Junior College
- Daniel A. Grady, M.B.A.*
Accounting
Wm. Underwood
- William E. Grady, B.S.*
Industrial Management
Courier Corp.
- Patrick Grant, Jr., M.P.A.
Health Professions
McLean Hospital
- Leon S. Graubard, M.A.*
Economics
Worcester Polytechnic Institute
- Nancie S. Green, M.S.
Anthropology/Sociology
Northeastern University
- Richard T. Green, Ed.D.
Therapeutic Recreation
Masconomet Regional High School
- Stephen S. Greene, B.S.
Psychology
Northeastern University
- Herbert J. Greenwald, Ph.D.
Psychology
Bridgewater State College
- John T. Gregg, B.S.
Real Estate
Winthrop Management
- Kristo A. Gregory, M.B.A.
Finance
L.F. Rothschild, Unterberg, Towbin
- Gerald R. Griffin, Ph.D.*
English
Northeastern University
- John L. Griffith, B.S.*
Management
State Dept. of Environmental Mgmt
- Joseph Grimaldi, M.A.
History
First National Bank of Boston
- Duane L. Grimes, Ph.D.*
Political Science
Northeastern University
- Martin L. Gross, M.S.E.E.
Marketing
Dynamic Measurement Corp
- Zoe A. Grosser, B.S.
Chemistry
Northeastern University
- Sidra Gruss-Zasmosky, M.A.
Therapeutic Recreation
Commonwealth of Massachusetts
- John J. Guarino, B.A.
Biology
Northeastern University
- George J. Guibault, M.A.
Music
Johnson & Higgins of Mass. Inc.
- Ronald E. Guitarr, B.S.
Personnel and Industrial Rel.
Raytheon Co.
- John R. Gustafson, M.B.A.
Accounting
John Hancock Life Ins. Co.
- Reginald W. Hache, M.A.
Music
Northeastern University
- Edward A. Hacker, Ph.D.*
Philosophy/Religion
Northeastern University
- Nasser L.S. Hadipour, M.S.
Chemistry
Northeastern University
- William T. Hadley, B.S.
Marketing
Hadley Co.
- Martin H. Halabian, J.D.*
History
Nat. Assoc. for Armenian Studies and Res.
- John Halberstadt, Ph.D.
English
Northeastern University
- Alice H. Hall, M.Ed.
Reading
Northeastern University
- James F. Hall, Jr., M.S.
Chemistry
Northeastern University
- Herbert E. Halliday, B.S.
Law Enforcement
Cambridge Police Dept.
- John F. Halloran, B.A.
Marketing
Metropolitan District Comm.
- Paul M. Halloran, B.S.*
Information Systems
Raytheon Co.
- Michael C. Halperin, M.B.A.
Information Systems
Commercial Union
- Donald J. Halpin, M.B.A.*
Finance
Winchester Fin. Mgmt. Corp.
- Isadore Halzel, M.B.A.*
Management
Charles Stark Draper Labs.
- Jacalyn S. Hamada, B.A.
Therapeutic Recreation
Crittenton-Hastings House
- Clarence D. Hammond, Ph.D.
Psychology
Northeastern University
- William F. Hancock, Jr., M.B.A.*
Finance
Digital Equipment Corp.
- Francis R. Hankard, M.A.
Law Enforcement
Massachusetts Dept. of Public Safety
- Robert A. Hankin, Ph.D.
Economics
Urban Systems Research & Eng.
- Norman E. Hansen, M.B.A.*
Marketing
D.W. Adams
- Ronald M. Hansen, M.A.
Psychology
Children's Hospital Medical Center
- Gerald I. Harel, Ph.D.
Economics
Massachusetts College of Pharmacy
- J. Steven Hargrave, B.S.
Information Systems
Digital Equipment Corp.
- Catherine E. Hargrove, M.S.W.
Anthropology/Sociology
Northeastern University
- David J. Harrigan, M.B.A.*
Management Sciences
D.J. Harrigan Associates
- Charles W. Harrington, Jr., Ph.D.
Economics
Northeastern University
- Ruth Ann M. Harris, Ph.D.
History
Susan H. Harris-Sharples, M.Ed.
- Susan H. Harris-Sharples, M.Ed.
Reading
Harvard University
- Joan Harrison, B.S.
Health Professions
Northeastern University
- Ellsworth V. Hart, B.S.
Information Systems
Honeywell Info. Systems
- Pamela H. Hart, M.A.*
Modern Language
Thomas M. Hart, M.S.
- Thomas M. Hart, M.S.
Accounting
U.S. Treasury
- Donald R. Hayden, B.S.
Information Systems
Digital Equipment Corp.
- David W. Hayes, Esq., LL.B.
Political Science
Seiler Corp.
- Marie J. Hayes, M.A.
Psychology
Northeastern University
- Robert T. Heald, M.B.A.
Accounting
Heald, Hoffmeister and Co.
- Robert J. Heanue, B.A.
Transportation
Self Employed
- Warren K. Heckman, M.A.*
Management
W.K. Heckman Associates, Inc.
- Robert J. Hehre, D.B.A.*
Finance
Northeastern University
- Barbara J. Hein, M.S.W.
Therapeutic Recreation
Mt. Auburn Hospital
- Louise H. Hekimian, M.B.A.
Management
Judith V. Henderson, B.S.
- Judith V. Henderson, B.S.
Biology
Northeastern University
- Robin M. Hendrich, M.A.
Music
Northeastern University
- E. Dianne Hennessy, M.Ed.
Personnel and Industrial Rel.
G.T.E. Sylvania Inc.
- George S. Hennessy, M.B.A.*
Marketing
I.P.L. Systems
- Richard C. Herlihy, B.S.
Information Systems
American Mutual Liability Co.
- Gerald H. Herman, M.A.*
History
Northeastern University
- George M. Herrick, M.B.A.*
Finance
John E. Cain Co.
- Matthew L. Herz, Ph.D.
Finance
U.S. Army Natick Res. and Dev. Labs.
- Max E. Hess, M.A.
Anthropology/Sociology
Northeastern University
- George F. Hickey, Jr., M.S.
Library Science
Town of Billerica
- Lebelle R. Hicks, B.S.
Biology
Northeastern University
- Michael J. Hicks, M.B.A.
Information Systems
Beverly Hospital
- Robert L. Hicks, M.B.A.
Finance
Consultant
- Chester W. Higgins, M.B.A.*
Management
M.B.T.A.
- Kathleen F. Higgins, M.A.
Law Enforcement
Massachusetts Dept. of Public Safety

- Peter Higgins, M.B.A.*
Accounting
Xtrax Corp.
- William F. Higgins, B.S.
Law Enforcement
Medford Police Dept.
- Arthur P. Hill, M.B.A.
Marketing
Hill Assoc. Inc.
- Lloyd H. Hill, J.D.
Personnel and Industrial Rel.
City of Quincy
- Stephen A. Hiltz, M.A.
History
Northeastern University
- James R. Hindman, M.B.A.
Personnel and Industrial Rel.
Northrop Corp.
- David W. Hmielowski, M.A.
Therapeutic Recreation
Mary Lane Hospital
- Christine L. Hobart, D.B.A.
Personnel and Industrial Rel.
Northeastern University
- Mark O. Hodgson, M.A.
Anthropology/Sociology
McLean Hospital
- Herbert A. Hoffman, B.S.
Law Enforcement
Defense Contract Admin.
- Richard J. Hoffmann, B.S.
Therapeutic Recreation
Creative Educational Assoc.
- Therese M. Hofmann, M.A.
Drama/Speech
Marshfield High School
- Gary J. Holstetter, M.Ed.
Therapeutic Recreation
Newton Recreation Dept
- Wesley B. Holbrook, B.S.
Industrial Management
Retired
- William J. Holden, M.A.
Marketing
Bay State Abrasives
- Robert Holmstrom, M.Ed.
Mathematics
Boston State College
- Susan W.C. Holton, Ph.D.*
Anthropology/Sociology
Tufts University
- Morris Horowitz, Ph.D.
Economics
Northeastern University
- William J. Hourihan, Ph.D.
History
Northeastern University
- Emanuel Howard, J.D.
Political Science
Kowal & Kowal
- Francis A. Howard, J.D.
Law Enforcement
Retired
- Martin J. Howard, M.B.A.
Accounting
Commonwealth of Massachusetts
- Jane A. Howe, B.S.
Anthropology/Sociology
- Roxanne L. Howe-Murphy, M.S.
Therapeutic Recreation
Northeastern University
- Thomas J. Hubbard, M.B.A.
Marketing
Eaton Corp.
- Anthony H. Hull, Ph.D.*
History
- Robert A. Hunter, M.A.
English
Mansfield High School
- Kerry L. Hurd, B.S.
Earth Science
Interstate United Co.
- Daniel F. Hurley, LL.B.*
Personnel and Industrial Rel.
Consultant
- Merle D. Hyman, J.D.
Personnel and Industrial Rel.
U.S. Dept. of Labor
- Jack F. Ingalls, B.S.
Law Enforcement
Consultant
- Irving E. Ingraham, Jr., M.D.
Health Professions
New England Deaconess Hospital
- John J. Irwin, Jr., J.D.*
Law Enforcement
Justice, Mass. Supreme Court
- Mervyn Israel, Ph.D.*
Chemistry
Sidney Farber Cancer Inst.
- Herbert H. Itzkowitz, M.B.A.*
Accounting
Forman, Itzkowitz & Berenson
- Bynum M. Jackson, Ph.D.
Medical Technology
Northeastern University
- Phillip S. Jackson, Esq., LL.B.*
Law
Attorney
- Donald M. Jacobs, Ph.D.
History
Northeastern University
- Joshua R. Jacobson, M.A.
Music
Northeastern University
- Thomas E. Jalliet, M.A.
Law Enforcement
Sandwich High School
- Paul A. Janell, Ph.D.
Accounting
Northeastern University
- Chester A. Janiak, M.S.
Political Science
Northeastern University
- Carson C. Johnson, Jr., Ph.D.*
Psychology
Emmanuel College
- Donald R. Johnson, M.B.A.
Personnel and Industrial Rel.
New England Telephone
- John W. Johnson, M.B.A.
Personnel and Industrial Rel.
Digital Equipment Corp.
- Karen S. Johnson, M.A.
Anthropology/Sociology
Harvard University
- Robert F. Johnson, J.D.*
Law Enforcement
First Security Service Corp.
- Robert P. Jolie, M.A.
Law Enforcement
Paton School
- Joseph M. Jordan, M.P.A.*
Law Enforcement
Boston Police Dept.
- David M. Joufflaian, B.A.
Economics
Northeastern University
- Frank J. Joyce, B.S.
Law Enforcement
Massachusetts State Police
- Jane Joyce, M.Ed.
Women's Career Program
Polaroid Corp.
- Joseph A. Kaczenas, B.S.
Information Systems
New England Mutual Life Ins. Co.
- Farhoud Kafi, M.A.
Economics
Northeastern University
- Martin J. Kahan, B.S.
Information Systems
Mast Industries, Inc.
- Eugenia O. Kaledin, Ph.D.*
English
Northeastern University
- Katherine M. Kalliel, M.Ed.
Women's Career Program
Dean Junior College
- Martin A. Kalustian, M.B.A.*
Management
Raytheon Co.
- Edward L. Kandib, M.Ed.*
Accounting
Public Accountant
- Donald E. Kane, B.S.
Law Enforcement
Barnstable Police Dept.
- Martin J. Kane, M.B.A.*
Purchasing
Raytheon Co.
- F. Patricia Kannon, B.S.
Marketing
Consultant
- Edward M. Kaplan, M.S.
Information Systems
Massachusetts General Hospital
- Jeffrey P. Kaplan, Ph.D.
English
Northeastern University
- Mort S. Kaplan, M.A.*
Drama/Speech
Northeastern University
- Steven D. Karchmar, M.B.A.
Personnel and Industrial Rel.
Wyman-Gordon Co.
- Gary M. Karelis, M.B.A.
Accounting
M. Karelis Wood Heel Co.
- Charles Karis, Ph.D.
Psychology
Northeastern University
- Catherine A. Karp, B.S.*
Biology
Northeastern University
- Harold D. Kastle, M.A.*
Personnel and Industrial Rel.
Raytheon Co.
- Stanley W. Kaszanek, Jr., M.A.
Anthropology/Sociology
Suffolk University
- Deborah S. Katz, M.B.A.
Finance
Mobil Tyco Solar Energy Corp.
- Robert S. Katz, B.S.
Journalism
Transcript Newspapers
- Ronald P. Kaufman, B.S.*
Law Enforcement
Massachusetts Dept. of Public Safety
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Northeastern University
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Music
Northeastern University
- Anthony H. Kearney, B.A.
English
Northeastern University
- Walter E. Kearney, M.B.A.*
Accounting
Northeastern University
- Stephen A. Keefe, M.Ed.
Personnel and Industrial Rel.
Beaverbrook STEP
- Jane W. Keet, M.A.
English
Northeastern University
- John A. Keith, Jr., J.D.
Management
SEMPRO
- Joseph A. Kelley, B.S.
Law Enforcement
U.S. Govt.-Gen. Serv. Admin.
- William E. Kelley, M.B.A.*
Accounting
Massachusetts Inst. of Technology
- Thomas W. Kelly, M.B.A.*
Information Systems
Massachusetts General Hospital

- Solomon Kenea, M.A.
Economics
Northeastern University
- Edward C. Kennedy, B.S.
Law Enforcement
Retired
- Thomas J. Kennedy, M.B.A.
Finance
M.B.T.A.
- Philip M. Keohane, M.A.
Journalism
Transcript Newspapers
- James J. Kerasiotes, B.A.
Political Science
Northeastern University
- Rostron J. Kershaw, M.S.
Therapeutic Recreation
Northeastern University
- Mary W. Keville, M.P.H.
Health Professions
Bon Secours Hospital
- Brian L. King, M.B.A.
Marketing
GenRad, Inc.
- Sandra J. King, B.S.*
Information Systems
Shawmut Bank of Boston
- Charles S. Kinney, M.Ed.
Health Professions
Lahey Clinic
- Gary F. Kinsella, M.A.
Political Science
Northeastern University
- Paul G. Kinsella, B.S.*
Real Estate
Paul G. Kinsella
- John Kirsch, A.B.
English
Massachusetts Inst. of Technology
- Virginia K. Kirshner, B.A.*
Drama/Speech
Lincoln-Sudbury Regional High School
- Lisa D. Kline
English
Stone & Webster Eng. Corp.
- Shirley L. Knight, M.Ed.
Therapeutic Recreation
Northeastern University
- Steven T. Knight, Ph.D.
English
Northeastern University
- Claire E. Knox, M.S.
English
Chamberlain School of Retailing
- John L. Kobrick, Ph.D.
Psychology
U.S. Army Rsch. Inst. Envir. Med.
- Richard J. Kochanowski, M.S.
Economics
U.S. Dept. of Transportation
- Bernhard J. Kohler, M.B.A.
Industrial Management
Polaroid Corp.
- Gerald G. Kokos, M.B.A.
Finance
W.R. Grace and Co.
- Elinor L. Kraft, A.S.
Psychology
Northeastern University
- Bennett L. Kramer, M.B.A.*
Information Systems
Massasoit Community College
- Donald J. Kramer, M.B.A.*
Finance
Hendrix Electronics, Inc.
- Ernest A. Kraus, M.S.W.
Therapeutic Recreation
Ernest A. Kraus, Private Consultant
- David H. Kravetz, J.D.*
Law
Widett, Salter & Goldman
- Jane M. Kretchman, B.S.
Health Professions
Lasell Junior College
- Bruce G. LaFlamme, M.S.W.
Health Professions
Massachusetts Dept. of Mental Health
- Sherry W. Lamade, B.S.
Health Professions
Jordan Hospital
- Paul K. Lambert, M.B.A.*
Transportation
Consultant
- Stephen R. Lancey, Ph.D.
Psychology
Boston Medical Center
- Nelson P. Lande, M.A.
Philosophy/Religion
Northeastern University
- Robert H. Landry, M.B.A.*
Accounting
Massasoit Community College
- Calvin J. Larson, Ph.D.
Anthropology/Sociology
University of Massachusetts
- Irma H. Lauter, M.S.M.E.
Information Systems
New England Telephone
- Robert E. Lavelle, M.A.
English
Honeywell Info. Systems
- Gerald J. Lavoie, M.P.A.
Law Enforcement
Northeastern University
- Joseph Laznow, M.S.
Earth Science
United Engineers & Constructors
- Alfred Lazzeri, M.F.A.
Art
Walpole High School
- Edward J. Leach, J.D.
Law Enforcement
Revere Police Dept.
- Morris G. Learner, LL.B.
Management
Stewart L. Lebo, M.S.
- Information Systems
First National Bank
- Roger J.F. Lehrberg, J.D.
Real Estate
Attorney
- Lila Leibowitz, Ph.D.
Anthropology/Sociology
Northeastern University
- Rande S. Leibowitz, B.S.*
Biology
Northeastern University
- Constance Leigh, M.A.
English
Northeastern University
- D. Paul Leitch
Psychology
U.S. Army Natick Res. and Dev. Labs.
- Bernard J. Lemire, B.S.
Chemistry
Northeastern University
- Ralph T. Lepore, Jr., B.S.
Law Enforcement
Swansea Police Dept.
- Philip W. Lequesne, D.Sc.
Chemistry
Northeastern University
- Mary F. Leslie, M.Ed.
Reading
Northeastern University
- Marvin X. Lesser, Ph.D.
English
Northeastern University
- Albert M. Levenson, M.B.A.*
Management Sciences
Charles Stark Draper Labs.
- Douglas R. Levin, B.S.
Health Professions
Northeastern University
- Jack Levin, Ph.D.
Anthropology/Sociology
Northeastern University
- Barbara Levitov, B.A.
Psychology
Northeastern University
- David J. Lewek, M.B.A.
Management
Chas. T. Main, Inc.
- David A. Lewis, B.S.
Chemistry
Northeastern University
- Mary T. Leyden, M.Ed.
Management
U.S. Environment Agency
- Domenic J. Liberatore, M.B.A.
Industrial Management
Raytheon Co.
- Robert C. Lieb, D.B.A.*
Transportation
Northeastern University
- Kenneth E. Lindauer, Esq., J.D.
Anthropology/Sociology
Lindauer & Gordon
- Joanne G. Linowes, M.S.
Drama/Speech
Massachusetts Educational Television
- Robert L. Litrownik, Ph.D.
Psychology
Mystic Valley Mental Health Center
- Thomas E. Littlehale, M.Ed.
Information Systems
John Hancock Life Ins. Co.
- Leo Litwin, M.A.*
Music
Anthony Lloyd, M.A.*
- English
Beth Israel Hospital
- Joseph S. Locastro, Ph.D.
Psychology
Boston Medical Center
- John S. Locke, B.S.*
Chemistry
Northeastern University
- Richard C. Logan, M.B.A.
Health Professions
Newton-Wellesley Hospital
- Edward J. Lonczak, M.B.A.*
Management
Commercial Union
- Miller C. Lovett, Ph.D.
Management
Boston State College
- Hope E. Luder, M.A.
History
Burlington High School
- Barbara E.B. Lundeen, M.A.
English
John J. Lyons, M.A.
- Law Enforcement
Retired
- Paul E. Lyons, B.S.*
Industrial Management
Gillette Co.
- Robert L. Mabardy, M.B.A.
Personnel and Industrial Rel.
C. J. Mabardy, Inc.
- Andrew C. MacAulay, M.S.*
Chemistry
New England Medical Center Hospital
- Edward R. MacCormack, M.P.A.
Law Enforcement
Boston Edison Co.
- Patricia R. MacDonald, M.A.
English
Thomas J. MacDonald, M.A.
- History
Town of Norwood
- Ronald C. MacKay, M.A.
English
Northeastern University
- Sylvia A. MacPhee, M.S.
Anthropology/Sociology
John V. Madden, J.D.
- Personnel and Industrial Rel.

*Denotes senior lecturer as of October, 1980.

- William J. Madden, A.B.*
Accounting
 Self Employed
- Stephen A. Madison, M.A.
Chemistry
 Northeastern University
- Judith Magidson, M.Ed.
Reading
 Northeastern University
- Ann Marie Maguire, Esq., J.D.
Medical Technology
 Commonwealth of Massachusetts
- Gerard E. Maguire, M.B.A.*
Purchasing
 Prime Computer, Inc.
- John A. Maguire, B.S.
Information Systems
 Commercial Union
- Thomas J. Maguire, J.D.*
Law Enforcement
 Retired
- Robert E. Mairs, B.S.
Personnel and Industrial Rel.
 Raytheon Co.
- Takashi Maki, Ph.D.
Biology
 New England Deaconess Hospital
- Helen C. Makris, M.Ed.
English
- Charles E. Maling, M.A.
Economics
 First Security Service Corp.
- Robert G. Mallion, M.Ed.
Earth Science
 Stoneham Public Schools
- Michael J. Mandracchia, B.S.
Biology
 Northeastern University
- Jeremiah J. Manfra, B.S.
Law Enforcement
 Boston Police Dept.
- George J. Manikas, B.S.
Law Enforcement
 Raytheon Co.
- Bernard Manning, J.D.
Law Enforcement
 Dept. of the Attorney General
- Albert R. Manson, M.Ed.*
Information Systems
 Honeywell Info. Systems
- J. Jack Manuel, Ph.D.*
Philosophy/Religion
 Creative Humanistics Inc.
- John A. Manzo, Jr., M.S.
Industrial Management
 New England Medical Center Hospital
- Julius Mariasis, M.B.A.*
Management
 Astamar, Inc.
- Steven J. Marino, B.S.
Mathematics
 Saugus Junior High School
- Bruce E. Marquis, M.A.
Health Professions
 National Spinal Cord Int. Fdt.
- Arnold M. Marrow, Esq., LL.B.*
Personnel and Industrial Rel.
 National Labor Relations Board
- Barry H. Marshall, M.B.A.
Accounting
 GenRad, Inc.
- John E. Marshall, M.B.A.*
Management
- Barbara E. Martin, B.A.
Health Professions
 Northeastern University
- John A. Martin, M.B.A.
Accounting
 Northeastern University
- John F. Martin, Ph.D.*
Industrial Management
 General Electric Co.
- John J. Martin, B.S.*
Personnel and Industrial Rel.
 Federal Med. & Concl. Service
- Leo J. Martin, B.S.
Law Enforcement
 John W. McCormack Building
- Zareh Martin, M.Ed.*
Industrial Management
 General Electric Co.
- Frederick J. Mason, Jr., B.S.*
Accounting
 Internal Revenue Service
- Richard P. Mason, M.B.A.*
Information Systems
 AVCO Corp.
- Russell B. Mason, M.B.A.*
Marketing
 Raytheon Co.
- Joseph D. Mastone, M.A.
Law Enforcement
 Bionomics
- Burton N. Matross, M.B.A.
Information Systems
 General Electric Co.
- George D. Matson, M.A.
Drama/Speech
 Hesser College
- Paul F. Matthews, M.P.A.
Law Enforcement
 Massachusetts State Police Academy
- Kevin E. Mautte, M.S.
Biology
 Northeastern University
- Paul D. Maxwell, M.B.A.*
Management
 Northeastern University
- Cynthia Mayher, M.S.
Health Professions
 Northeastern University
- Teresa A. Mayors, B.A.
Anthropology/Sociology
 Northeastern University
- James J. Mazza, M.P.A.
Law Enforcement
 Woburn Police Dept.
- Carol K. McAuliffe, J.D.
Law
 Dugan & McAuliffe
- Gerard S. McAuliffe, J.D.
Law Enforcement
 McAuliffe, Attorney
- Robert P. McAuliffe, M.B.A.*
Marketing
 GenRad, Inc.
- Larry D. McCargar, Ph.D.
Philosophy/Religion
- Daniel J. McCarthy, D.B.A.*
Management
 Northeastern University
- Francis J. McCarthy, B.S.
Information Systems
 Feeley & Driscoll
- Michael N. McCarthy, Ph.D.
Psychology
 Boston State College
- William S. McCarthy, J.D.
Law Enforcement
 Attorney
- Joan C. McCartney, M.S.
Biology
 Emmanuel College
- James P. McChesney, M.Ed.
Health Professions
 Northeastern University
- John E. McCormack, M.B.A.
Accounting
 Youville Hospital Inc.
- Joseph F. McCormack, M.Ed.*
Law Enforcement
 House of Representatives
- Leo F. McCue, Jr., Ph.D.
History
 Central Catholic High School
- James F. McDermott, M.B.A.
Accounting
 Bentley College
- Andrew J. McDonough, B.S.*
Insurance
 Appleby & Wyman Inc.
- Earl E. McEvoy, M.B.A.
Finance
 Thorndike, Doran, Paine, & Lewis
- Patrick J. McGeary, M.A.
English
 Northeastern University
- Daniel R. McGrath, M.A.
Psychology
 Northeastern University
- John B. McGrath, B.S.*
Finance
 New England Telephone
- James L. McGuinness, Jr., M.B.A.*
Accounting
 EG&G Inc.
- Thomas J. McHugh, M.B.A.*
Finance
 Consultant
- Frederick L. McKenney, J.D.
Real Estate
 Frederick L. McKenney
- Raymond P. McKeon, B.S.
Law Enforcement
 Chelmsford Police Dept.
- Mary T. McLaughlin, M.P.H.
Health Professions
 Natick Public Schools
- Robert W. McLean, M.B.A.
Management
 Self Employed
- Paul F. McManus, B.S.
Information Systems
 John Hancock Life Ins. Co.
- Thomas J. McNamara, B.S.*
Information Systems
 Honeywell Info. Systems
- Richard J. McNeil, Jr., M.B.A.
Economics
 Northeastern University
- Pauline M. McNulty, B.S.
Information Systems
 Digital Equipment Corp.
- Joseph P. McParland, J.D.*
Law Enforcement
 Attorney
- Clay McShane, Ph.D.
History
 Northeastern University
- Herbert L. Meiselman, Ph.D.
Psychology
 U.S. Army Natick Res. and Dev. Labs.
- Frank D. Mele, B.S.
Accounting
 Internal Revenue Service
- Kenneth C. Mermer, M.B.A.
Health Professions
 Nevins Home, Inc.
- George B. Merry, A.B.*
Journalism
 Christian Science Publishing
- Charles A.M. Meszozoely, Ph.D.*
Biology
 Northeastern University
- Michael W. Metzler, M.A.
Personnel and Industrial Rel.
 Stop & Shop Companies, Inc.
- Leonard F. Meuse, Jr., M.B.A.
English
 Polaroid Corp.
- Ronald L. Michaud, M.S.
Psychology
 Perkins School for the Blind
- George Michells, M.A.
Economics
 Northeastern University
- Elmer B. Michelson, M.A.*
English
 Boston Conservatory of Music
- Sylvia J. Mignon, M.A.
Anthropology/Sociology

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- Charles J. Miller, B.S.
Information Systems
J&J Corrugated Box Corp.
- Izchak Miller, Ph.D.
Philosophy/Religion
Brandeis University
- James W. Miller, B.S.
Management
Bunker Hill Community College
- Pearline M. Miller, M.Ed.
Reading
Afro-American Institute
- Stephen R. Miller, M.S.*
Library Science
Wellesley Free Library
- William R. Millington, M.S.
Health Professions
Massachusetts Inst. of Technology
- Helena C. Minton, M.F.A.
English
University of Lowell
- Richard R. Miranda, M.B.A.
Purchasing
Multibank Financial Corp.
- Nityananda Misra, M.B.A.
Industrial Management
Dennison Manufacturing Co.
- Amita Mody, M.A.*
Anthropology/Sociology
Northeastern University
- James A. Molloy, B.A.
Transportation
Tranco Inc.
- James F. Molloy, Jr., M.B.A.*
Management
Tranco Inc.
- Stephen P. Molloy, R.R.A., B.A.
Health Professions
Lowell General Hospital
- Patricia A. Moore, M.A.
Health Professions
Continuing Education Inst.
- Julie A.S. Moran, B.S.
Chemistry
Northeastern University
- Peter C. Moran, B.S.
Chemistry
Northeastern University
- Leslie B. Morash, M.B.A.*
Transportation
Service Warehouse Co.
- Jerry A. Morris, M.B.A.*
Personnel and Industrial Rel.
ITEK Corp.
- Richard M. Morrison, M.B.A.*
Information Systems
Strategic Planning Inst.
- William E. Morrison, Jr., M.B.A.
Personnel and Industrial Rel.
Self Employed
- Peter J. Morrissey, B.S.
Information Systems
M.B.T.A.
- Mark B. Moss, Ph.D.
Psychology
- Henry A. Moultrie II, M.B.A.
Management
Mission Church of Christ
- Christine A. Moustakis, M.S.
Chemistry
Tufts University
- Carl F. Moxey, Ph.D.
Biology
Self Employed
- James D. Mukjan, M.B.A.*
Industrial Management
U.S. Defense Logistics Agency
- James W. Mulford, B.S.*
Law Enforcement
Ayer District Court
- Paul V. Mulken, M.S.*
Personnel and Industrial Rel.
U.S. Dept. of Labor
- Edmund J. Mullen, M.Ed.*
History
Northeastern University
- Francis E. Mullen, B.S.
Law Enforcement
Quincy Police Dept.
- William S. Mullen, M.A.
Political Science
Foxboro School System
- Bianca M. Murphy, C.A.G.S.
Psychology
Womenspace Feminist Therapy Collective
- Charles W. Murphy, M.B.A.
Finance
Bunker Hill Community College
- James F. Murphy, B.S.*
Law Enforcement
Haverhill Police Dept.
- Paul J. Murphy, J.D.*
Management
General Electric Co.
- Charles J. Murray, Ph.D.
English
Digital Equipment Corp.
- Roland L. Nadeau, M.A.*
Music
Northeastern University
- J. D. Naparstek, M.S.
Health Professions
Nashoba Assoc. of Boards of Health
- John D. Nash, M.H.A.
Health Professions
Sidney Farber Cancer Inst.
- Shashi Nath, Ph.D.
Anthropology/Sociology
- Theodore H. Needle, B.S.*
Accounting
Needle & Needle
- Mitchell J. Nelles, Ph.D.
Biology
Rosenthal Basic Medical Serv.
- David C. Nelson, B.S.
Accounting
David C. Nelson
- Margaret W. Nelson, M.A.
English
- John N. Nestor, J.D.
Law Enforcement
- Thomas J. Neylon, Jr., M.A.
English
Watertown Public Schools
- Bruce E. Nickerson, Ph.D.
Anthropology/Sociology
Wang Laboratories
- Marion L. Nierintz, C.A.G.S.
Personnel and Industrial Rel.
John Hancock Life Ins. Co.
- James C. Nolan, M.S.W.
Personnel and Industrial Rel.
M.B.T.A.
- Richard W. Norton, B.A.*
Information Systems
Foxboro Co.
- Edward G. Novello, B.S.*
Transportation
Best T&D Associates
- Fatemeh Nowshad, M.S.
Chemistry
Northeastern University
- Jane M. Nunes, A.S.
Psychology
Northeastern University
- Norbert F. Nunes, M.A.*
English
Massachusetts Bay Community College
- David H. O'Brien, M.B.A.
Accounting
New England Merchants Bank
- Ellen G. O'Brien, M.Ed.
Personnel and Industrial Rel.
- Marie M. O'Brien, Ph.D.
Marketing
University of Lowell
- Robert M. O'Brien, B.S.
Information Systems
Northeastern University
- William T. O'Brien, M.P.A.
Law Enforcement
Boston Police Dept.
- Frederick T. O'Connell, J.D.
Accounting
Internal Revenue Service
- Daniel F. O'Connor, M.S.
Information Systems
Northeastern University
- Robert W. O'Connor, Ed.D.
Women's Career Program
Northeastern University
- Aileen J. Ofer, M.A.*
English
- George C. O'Grady, B.S.
Information Systems
Digital Equipment Corp.
- Joseph A. O'Keefe, M.Ed.
Law Enforcement
Dept. of Public Safety
- Ernest Oliveira, Jr., M.B.A.
Industrial Management
General Electric Co.
- Jon J. Oliver, M.A.
Therapeutic Recreation
Creative Educational Assoc.
- Wayne J. Oliver, M.A.
Economics
State Energy Office
- Gerald F. Olsen, M.B.A.
Accounting
Digital Equipment Corp.
- George C. Olson, M.B.A.
Information Systems
Home Savings Bank
- Kirtland H. Olson, M.A.
English
The Harvard Group
- David S. Omar, M.Ed.
Economics
Dean Junior College
- James W. O'Neil, A.B.*
Law Enforcement
Security Consultant
- Shelagh K. O'Rourke, M.Ed.
Anthropology/Sociology
Harvard University
- Nancy P. Orton, B.A.
English
- George J. O'Shea, Jr., M.S.W.
Law Enforcement
Division of Youth Services
- Richard H. O'Shea, M.P.A.
Law Enforcement
Massachusetts State Police
- Albert J. Ottarano, M.B.A.*
Economics
U.S. Department of Labor
- J. Rosson Overcash, M.A.
Earth Science
Bunker Hill Community College
- Carol A. Owen, Ph.D.
Anthropology/Sociology
Northeastern University
- Richard W. Paine, Ph.D.
Psychology
- Howard R. Palmer, J.D.*
Law Enforcement
Attorney General's Office
- Leo Panas, M.S.
Art
Lowell State College
- Paula J. Parece, B.S.
Health Professions
Framingham Union Hospital
- Robert A. Parsons, M.A.*
Management Sciences
Northeastern University
- Paul S. Paslaski, M.B.A.
Information Systems
Digital Equipment Corp.

- Theodore C. Patrikas, B.S.*
Management
General Electric Co.
- William L. Patton, Jr., B.S.
Journalism
New England Press Assoc.
- David F. Pauling, M.A.
Modern Languages
Northeastern University
- Nancy A. Payne, M.B.A.
Women's Career Program
Massachusetts General Hospital
- Joseph V. Pearincott, Ph.D.
Biology
Northeastern University
- Joseph C. Pedula, B.S.
Personnel and Industrial Rel.
Gillette Co.
- William B. Peirce, M.B.A.
Finance
Cape Cod Community College
- Robert A. Pelletier, B.S.
Information Systems
Commercial Union
- Katherine N. Pendergast, M.Ed.
Personnel and Industrial Rel.
Northeastern University
- Martin L. Pendleton, Jr., B.S.*
Information Systems
Independent Consultant
- Philip W. Pendleton, Ph.D.*
Psychology
Northeastern University
- Carroll E. Pennell II, M.B.A.
Real Estate
C.W. Whittier & Bro.
- Rohe W. Pennington III, B.A.
Psychology
Northeastern University
- William A. Percy, Ph.D.
History
Univ. of Massachusetts/Boston
- Timothy P. Perkins, M.A.
English
Northeastern University
- William J. Peros, M.S.
Biology
Northeastern University
- Harry J. Perreault, B.S.
Information Systems
Liberty Mutual Ins. Co.
- Richard A. Perrin, M.B.A.
Information Systems
Massachusetts General Hospital
- Curtis M. Perry, M.B.A.
Accounting
3M Corp.
- Daniel Pershonok, Ph.D.*
Psychology
Harvard Medical School
- Stuart S. Peterfreund, Ph.D.
English
Northeastern University
- Frederick D. Peterson, M.A.
Anthropology/Sociology
Merrimack College
- Ausleie M. Petronis, M.A.
English
Petronis & Goldman Assoc.
- Marie J. Philip, B.A.
Psychology
Northeastern University
- James J. Phillips, Ph.D.
Anthropology/Sociology
American Friends Service Committee
- Jerrold A. Phillips, Ph.D.
Drama/Speech
Northeastern University
- Lawrence M. Pidgeon, J.D.
Law
Attorney at Law
- George G. Pierce, J.D.*
Law
U.S. Government
- Karen L. Pierce, A.S.
Information Systems
Northeastern University
- Benjamin E. Pike, M.B.A.*
Personnel and Industrial Rel.
Massasoit Community College
- Joseph G. Pike, M.A.
Health Professions
Bay State Pension Services
- Karen F. Pike, M.Ed.*
Art
Gerald T. Pineault, M.B.A.
- Industrial Management*
Polaroid Corp.
- Barbara A. Pinsky, A.M.
English
Elizabeth R. Pisanelli, B.A.
- Biology*
Northeastern University
- Garth I. Pitman, M.A.
English
Northeastern University
- Carmen S. Pizzuto, Ph.D.*
Law Enforcement
Dept. of Youth Services
- Jacqueline Platt, M.Ed.
Women's Career Program
Northeastern University
- Harlan B. Plumley, M.B.A.
Finance
Honeywell Info. Systems
- Giadys M. Polansky, M.A.*
English
Richard W. Pomeroy, A.B.
- Information Systems*
Pomeroy Associates
- John D. Post, Ph.D.*
History
Northeastern University
- Sylvia Poster, M.B.A.
Management
Pine Manor College
- Joseph L. Potts, M.B.A.
Finance
Burgess & Leith, Inc.
- James E. Poulos, M.A.
English
Northeastern University
- Edward J. Powers, M.Ed.*
Industrial Management
Self Employed
- Stephen J. Powers, M.S.
Information Systems
AVCO Everett Research Lab
- Steven J. Pozzi, M.A.
Economics
Northeastern University
- John T. Prendergast, J.D.
Law Enforcement
Uniform Crime Reporting
- Michael J. Princi, J.D.
Law Enforcement
Garnick & Princi
- Edward V. Puopolo, J.D.*
Law
Sloane, Puopolo & Carr, Attys.
- Carlton Purcell, M.B.A.
Information Systems
Boston Export Management Co.
- Mohamed A. Rahman, Ph.D.
Economics
Jonathan E. Rakin, M.A.
- Economics*
Northeastern University
- William V. Ramaskewich, Jr., B.S.
Therapeutic Recreation
Kennedy Center/Child Development
- Malati Ramratnam, Ph.D.
English
Denise C. Ratliff, B.S.
- Therapeutic Recreation*
Northeastern University
- Nathaniel C. Raymond, Ph.D.
Anthropology/Sociology
Boston State College
- Bernard R. Redgate, M.S.
Information Systems
Frammingham Public Schools
- Caroline B. Rees, M.A.
History
International Institute
- Denis G. Regan, Esq., J.D.*
Law
Self Employed
- Richard M. Regan, LL.B.
Personnel & Industrial Rel.
State Street Bank
- William M. Reiff, Ph.D.
Chemistry
Northeastern University
- Stewart Reiser, Ph.D.
Political Science
Northeastern University
- Frank C. Renew, Jr., M.A.
Psychology
Northeastern University
- William J. Rennie, M.B.A.
Transportation
Boston & Maine Corp.
- Janet R. Reohr, Ph.D.
Psychology
Northeastern University
- Evan B. Rich, M.B.A.
Finance
Stone & Webster Eng. Corp.
- Herbert L. Richmond, C.A.G.S.
Therapeutic Recreation
Area II Homecare Senior Citizen
- Stephen L. Ridge, M.B.A.
Accounting
Raytheon Co.
- Frederick W. Riley, J.D.
Law Enforcement
Asst. Attorney General
- J. Scott Riley, B.S.
Marketing
J.S.R. Associates, Inc.
- William J. Riley, M.Ed.
Law Enforcement
Brookline Police Dept.
- Daniel J. Roberts, M.B.A.
Accounting
Northeastern University
- Frank M. Robinson, Jr., C.A.G.S.*
Therapeutic Recreation
Northeastern University
- Holbrook C. Robinson, Ph.D.
Modern Languages
Northeastern University
- Raymond H. Robinson, Ph.D.
History
Northeastern University
- Leo F. Roche, Jr., LL.B.*
Finance
Darling & McLaughlin
- Cephas B. Rogers, M.B.A.*
Industrial Management
Polaroid Corp.
- Ralph V. Rogers, M.A.
Anthropology/Sociology
Boston City Hall
- William H. Rogers, M.Ed.
Transportation
Nixdorf Computer Corp.
- Theodore Role, M.A.
Personnel and Industrial Rel.
Arbitrator
- Irene L. Roman, M.Ed.
Accounting
Newton North High School
- Lawrence J. Romano, M.A.*
Modern Languages
Charles Stark Draper Lab. Inc.
- Robert N. Romanowski, B.S.
Law Enforcement
First Security Service Corp.

*Denotes senior lecturer as of October, 1980.

- Fred A. Rosenberg, Ph.D.
Biology
Northeastern University
- Joel M. Rosenfeld, M.S.*
Industrial Management
BTU Engineering Corp.
- David Ross, M.S.*
Management Sciences
Gillette Co.
- Richard S. Ross, M.A.
History
- Louis J. Rossi, Jr., M.B.A.
Accounting
Massachusetts Port Authority
- Robert J. Roth, D.B.A.*
Law Enforcement
Retired
- James R. Rowell, Jr., Ph.D.
Information Systems
North Shore Community College
- Richard N. Roy, M.B.A.
Transportation
Stone & Webster Eng. Corp.
- Gerald R. Rubin, B.S.*
Accounting
Green, Rubin & Miller
- Louis Rudzinsky, B.S.*
Personnel and Industrial Rel.
Louis Rudzinsky Assoc. Inc.
- Marilyn L. Rumph, M.A.
Psychology
Honeywell Info. Systems
- Robin R. Rumph, M.A.
Psychology
Northeastern University
- Frank L. Ryan, Ph.D.*
English
Stonehill College
- William J. Ryan, B.S.
Law Enforcement
Massachusetts Dept. of Corrections
- Anthony J. Ryzanczak, B.A.
Information Systems
Digital Equipment Corp.
- John D. Ryder, M.S.
Accounting
SCA Services Inc.
- Frederick J. Rys, M.B.A.
Finance
New England Telephone
- Alexander R. Rysman, Ph.D.
Anthropology/Sociology
Northeastern University
- Charles L. Saccardo, Jr., M.A.*
Economics
University of Lowell
- Carol R. Saivetz, M.A.
Political Science
Northeastern University
- Charles L. Sakey, M.A.*
Modern Languages
Boston Latin School
- George J. Salm, B.A.
Political Science
Northeastern University
- Mary E. Salus, M.A.
Anthropology/Sociology
Massachusetts Dept. of Public Welfare
- James B. Sampson, Ph.D.
Psychology
U.S. Army Rsch. Inst. Envir. Med.
- Paul E. Sanders, M.B.A.
Finance
Honeywell Info. Systems
- Jeannette Saquet-Shire, M.A.*
Anthropology/Sociology
Northeastern University
- Willis L. Saulnier, M.S.W.*
Personnel and Industrial Rel.
Raytheon Co.
- Gustav Schachter, Ph.D.
Economics
Northeastern University
- Eunice Schatz, M.A.
Women's Career Program
Many Mansions
- Frank T. Schettino, M.S.
Law Enforcement
Northeastern University
- Donald S. Scheutele, Ph.D.
Chemistry
Boston Public Schools
- John J. Schickling, M.B.A.
Accounting
General Electric Co.
- William J. Schmid, B.S.
Marketing
U.S. News & World Report
- Carol A. Schneider, M.B.A.
Marketing
Control Data Corp.
- Fred N. Schneeweiss, Ph.D.
Health Professions
Northeastern University
- Roy M. Schoenfeld, Esq., J.D.
Personnel and Industrial Rel.
National Labor Relations Board
- Harry G. Schortmann, Jr., M.B.A.
Transportation
Aviation Consultant
- Lucy J. Schuman, B.S.
Health Professions
Randolph High School
- William E. Sears, M.S.W.*
Law Enforcement
Dept. of Youth Services
- Frank J. Seegraber, A.B.*
Library Science
Boston College
- Harvey J. Segall, A.S.
Journalism
Harvey J. Segall Photography
- Peter K. Seibert, M.B.A.
Transportation
Multisystems, Inc.
- William M. Seiple, Ph.D.
Psychology
Northeastern University
- Peter M. Selig, M.A.*
Economics
Analog Devices
- Abu K. Seimuddin, M.A.
Economics
Northeastern University
- Peter Serenyi, Ph.D.
Art
Northeastern University
- Kathleen M. Sevigny, M.B.A.
Accounting
Terkelsen Molding Co. Inc.
- John W. Shank, M.S.
Therapeutic Recreation
Northeastern University
- John C. Shannon, M.A.*
Economics
Suffolk University
- Robert J. Shannon, M.S.
Health Professions
VA Medical Center
- Paul H. Shapiro, M.A.
Art
- Samuel Shapiro, M.B.A.*
Finance
Samuel Shapiro & Co., Inc.
- James H. Sharkey, B.S.
Law Enforcement
State Police Headquarters
- Garrett M. Sheehan, M.S.
Law Enforcement
Lowell Police Dept.
- Robert J. Sheehan, M.A.
Security
Waltham Federal Center
- Arthur Sherman, J.D.*
Law
Trial Court of the Commonwealth
- Stephen M. Shinnick, M.P.A.
Political Science
Norwood Public Schools
- Henrietta M. Shmase, B.A.
Health Professions
Winchester Hospital
- Alan R. Shneider, M.B.A.
Accounting
Alan R. Shneider
- Ruth E. Shore, M.A.
English
Fisher Junior College
- Paul M. Short, M.S.
Management
U.S. Army R&D Command
- Frank L. Shufelt, B.A.
Management
Johnson & Wales College
- Ronald A. Shulman, M.C.E.
Marketing
Business Communication Serv. Inc.
- Andrew Silverman, M.S.
Accounting
Nature Food Centers Inc.
- Herbert H. Silverman, Ed.D.*
Music
Northeastern University
- George H. Simmons, Jr., M.A.
Economics
Dept. of Public Utilities
- Michael L. Simmons, M.P.A.
Political Science
Commonwealth of Massachusetts
- S. Murray Simons, M.B.A.*
Accounting
So. N.H. Mental Health Center
- Lloyd A. Skiffington, Ph.D.*
English
Northeastern University
- Vernon Skipper, B.S.
Management
John Hancock Life Ins. Co.
- William I. Sloane, LL.B.*
Law
Sloane, Puopolo & Carr, Attys.
- Donald O. Smith, Esq., J.D.
Law
Attorney
- Frederick I. Smith, Jr., B.A.
Political Science
Commonwealth of Massachusetts
- Michael W. Smith, M.A.
Anthropology/Sociology
Northeastern University
- Richard L. Smith, M.Ed.
English
Wellesley Public Schools
- Robert W. Smith, B.S.
Personnel and Industrial Rel.
Northrop Corp.
- Stephen W. Smith, M.A.
History
Northeastern University
- Paul E. Snoonian, Sr., Ph.D.
Economics
University of Lowell
- Leo Snyder, M.S.*
Music
Northeastern University
- Nancy P. Snyder, M.S.
Psychology
Womenspace Feminist Therapy Collective
- Christos Socardes, M.A.*
English
- Susan S. Sock, M.Ed.
Women's Career Program
Northeastern University
- Sulo A. Sorni, M.B.A.
Industrial Management
Commonwealth of Massachusetts
- Kenneth C. Solano, M.Ed.
Personnel and Industrial Rel.
Northeastern University

- David Sonnenschein, Ph.D.
Music
Northeastern University
- Edward L. Sousa, M.B.A.
Information Systems
Northeastern University
- Robert V. Sparks, Ph.D.*
History
Massachusetts Historical Society
- Robert M. Spector, Ph.D.*
History
Worcester State College
- George A. Speers, M.Ed.
Journalism
Northeastern University
- Robert W. Spiegel, M.B.A.
Health Professions
McLean Hospital
- Paul H. Spiers, Jr., B.S.
Journalism
New England Telephone
- Francis C. Stacey, M.B.A.*
Management
Dept. of Public Health
- George H. Stacey, Jr., M.B.A.*
Information Systems
AERL, Inc.
- Lee B. Staebler, M.B.A.*
Accounting
Boston State College
- Ronald Stapleton, B.S.
Law Enforcement
Boston Police Dept.
- Thomas P. Stark, M.B.A.
Finance
MFE Corp.
- Charles K. Stefanidakis, M.B.A.
Accounting
T.I. Raleigh U.S.A. Inc.
- Alan E. Steinberg, J.D.*
Real Estate
Self Employed
- Thomas J. Stockett, B.S.
Personnel and Industrial Rel.
New England Mutual Life Ins. Co.
- George L. Stockman, B.S.
Marketing
Creamer, Inc.
- Edmund L. Stoddard, M.S.
English
Raytheon Co.
- Joseph F. Stoltz, Ph.D.
Economics
U.S. Dept. of Labor
- John W. Stout, M.A.*
Political Science
Roger Williams College
- James J. Stratford, Jr., J.D.*
Law Enforcement
Attorney at Law
- Vinayakam Subramanyam, Ph.D.
Chemistry
- Edward Sulesky, J.D.
Personnel and Industrial Rel.
Dist. Court of Central Middlesex County
- Albert W. Sullivan, J.D.
Real Estate
U.S. Postal Service
- Cornelius J. Sullivan, J.D.
Law Enforcement
Attorney
- Daniel J. Sullivan, J.D.
Personnel and Industrial Rel.
U.S. Dept. of Labor
- Daniel P. Sullivan, M.B.A.
Economics
Trans. Systems Center
- Jeremiah G. Sullivan, B.S.*
Information Systems
Digital Equipment Corp.
- John F. Sullivan, B.S.
Personnel and Industrial Rel.
Stone & Webster Eng. Corp.
- Marianne I. Sum, M.A.
History
Northeastern University
- Barbara S. Sunstein, M.Ed.
Reading
Northeastern University
- Joseph L. Supple, A.B.
Information Systems
Digital Equipment Corp.
- Joseph Sweeney, M.B.A.
Information Systems
Interactive Data Corp.
- Allen M. Swenson, M.B.A.*
Economics
Raytheon Co.
- George J. Swidler, M.Ed.*
Law Enforcement
Sullivan Agency
- Gary G. Swinson, M.B.A.
Management
Data General Corp.
- James A. Sylvester, M.B.A.
Finance
U.S. Coast Guard
- Lawrence E. Symington, Ph.D.
Psychology
U.S. Army Natick Res. and Dev. Labs.
- Eli Szklanka, B.A.
Information Systems
EDP Corp.
- Priscilla D. Taft, M.D.
Cyrotechnology
Massachusetts General Hospital
- Thomas J. Tagliamonte, M.B.A.
Management
New England Mutual Life Ins. Co.
- Hugh J. Talbot, M.P.A.*
Law Enforcement
Northeastern University
- Daniel E. Tanguy, M.A.
Information Systems
Massachusetts General Hospital
- Joyce K. Tapper, M.Ed.
Reading
Polaroid Corp.
- Summer B. Tapper, M.Ed.*
English
Stoughton High School
- Theodore A. Tasis, M.A.
English
Raytheon Co.
- Alan M. Tattle, M.Ed.*
Information Systems
City of Lynn School Dept.
- Gloria J. Taylor, M.A.
Anthropology/Sociology
- Roger B. Taylor, Esq., M.A.
Economics
Northeastern University
- Paul H. Tedesco, Ph.D.
History
Northeastern University
- William R. Teneick, M.A.
Information Systems
Northeastern University
- John B. Tessicini, M.B.A.
Personnel and Industrial Rel.
Charles T. Main, Inc.
- Norman R. Tessier, C.A.G.S.
Accounting
Boston School Committee
- Diane L. Thatcher, M.S.
Therapeutic Recreation
Northeastern University
- Alan P. Thayer, Esq., M.B.A.*
Economics
Boston College
- Steven T. Thomas, M.A.
Modern Languages
Tufts University
- Ted Thomas, Jr., B.S.
Anthropology/Sociology
Northeastern University
- Wendy W. Thompson, M. Litt.
History
Lexington Public Schools
- Carol L. Thorp, M.Ed.
Women's Career Program
Mass. Dept. of Higher Education
- Henry L. Tischier, Ph.D.*
Anthropology/Sociology
Framingham State College
- Mark W. Tobin, B.S.
Health Professions
Ellis Nursing Home
- William J. Tobin, M.P.A.*
Law Enforcement
Police Management Consultant
- Ronald C. Tocci, B.S.
Accounting
Self Employed
- Patrick F. Todd, B.S.
Management
Northeastern University
- Warren C. Tomkiewicz, Jr., M.S.
Earth Science
Needham High School
- Arthur J. Tonelli, B.S.
Information Systems
Northrop Corp.
- James M. Toomey, M.P.A.
Law Enforcement
Massachusetts State Police
- Lloyd A. Torgove, M.B.A.
Management
Ramada Inn
- Frank M. Tortora, M.A.
Economics
Northeastern University
- Victor H. Tose, M.B.A.
Accounting
Eastern Nazarene College
- Rosario J. Tosiello, Ph.D.*
History
Pine Manor College
- Allan Tosti, M.P.A.
Political Science
Massachusetts Municipal Assoc.
- Harvey L. Towrim, Esq., J.D.
Law
- Edward G. Trachtenberg, M.B.A.
Information Systems
Raytheon Co.
- Joseph J. Travia, Jr., M.B.A.
Accounting
Arthur D. Little
- Gail L. Travis, M.A.
Anthropology/Sociology
- Charles M. Trimback, Jr., Ph.D.
Psychology
Northeastern University
- Chandra S. Turaga, M.S.
Information Systems
Digital Equipment Corp.
- James D. Turley, Ed.D.*
English
Rhode Island College
- David W. Tutein, M.A.*
English
Northeastern University
- Theresa H. Twombly, M.A.*
Anthropology/Sociology
- Penelope S. Tzougros, Ph.D.
English
Hellenic College
- Joseph Vaccaro, M.A.
History
Northeastern University
- Philip A. Vaccaro, M.B.A.
Management Sciences
Salem State College
- Donat A. Valcourt, B.S.
Information Systems
LFE Corp.
- Michael A. Vance, Ph.D.
Health Professions
Northeastern University

*Denotes senior lecturer as of October, 1980.

- Zebulon B. Vance, M.D.
Health Professions
New England Deaconess Hospital
- Alint V. Varughese, Ph.D.
English
Bentley College
- Harvey Velstein, M.A.*
English
Northeastern University
- Sharon A. Vieira, M.B.A.
Accounting
Polaroid Corp.
- Robert A. Vinson, M.A.
Economics
Northeastern University
- Robert F. Vitale, B.S.*
Information Systems
Data General Corp.
- Philip M. Vitti, M.S.*
Law Enforcement
Boston Police Dept.
- Nancy I. Vogel, B.S.
Therapeutic Recreation
Crittendon-Hastings House
- Paula M. Vosburgh, M.S.
Health Professions
Catherine Laboure Junior College
- Dorothy G. Wagg, R.R.A., B.A.
Health Professions
New England Memorial Hospital
- Jeffrey L. Wain, M.S.
Biology
Northeastern University
- Paul M. Waldron, M.P.A.
Law Enforcement
MCI Bridgewater
- Herbert M. Wall, M.B.A.
Law Enforcement
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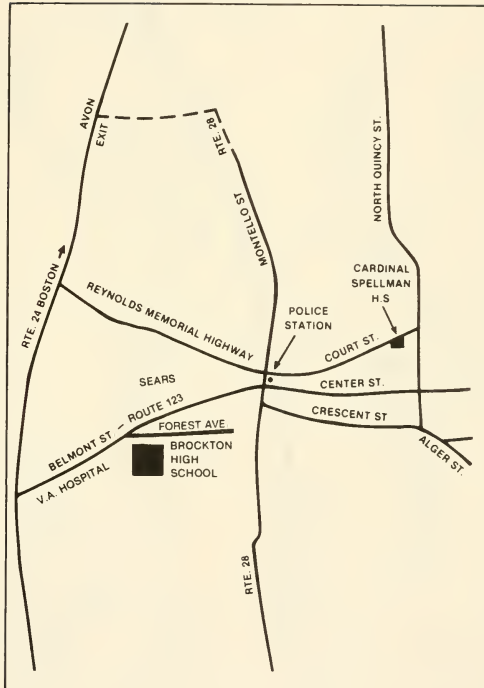
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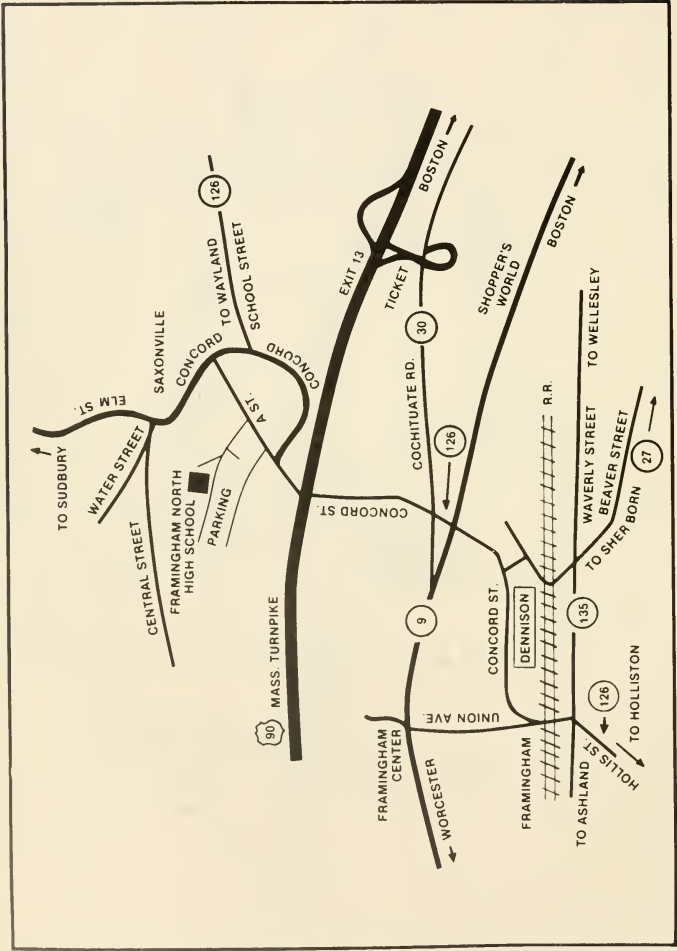
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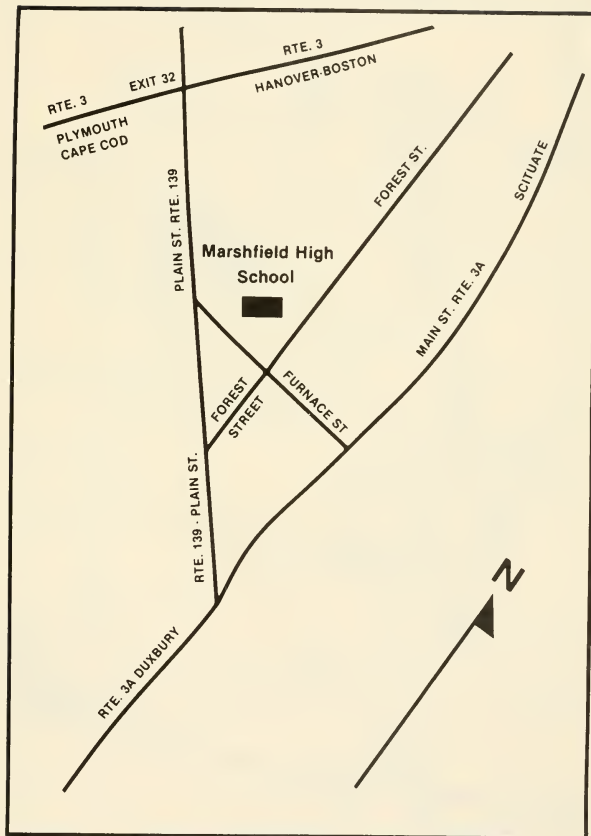
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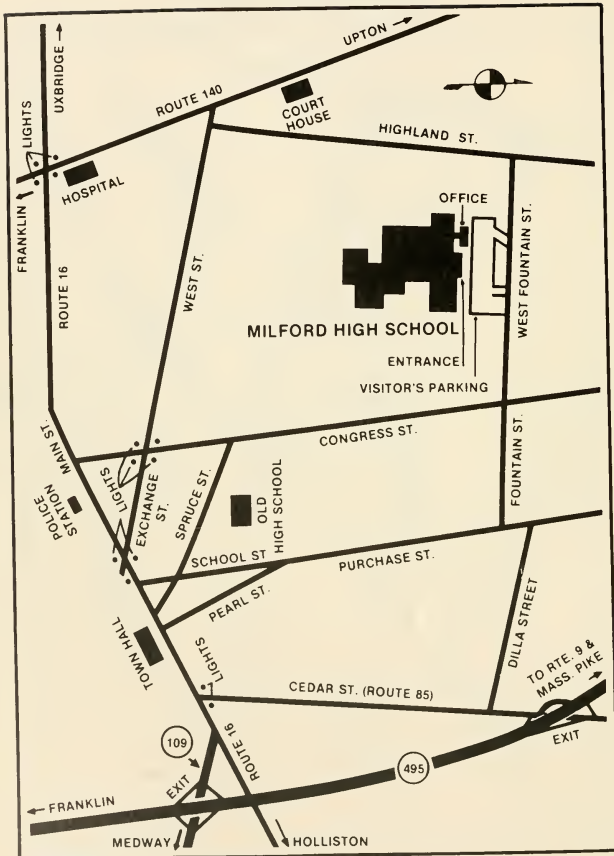
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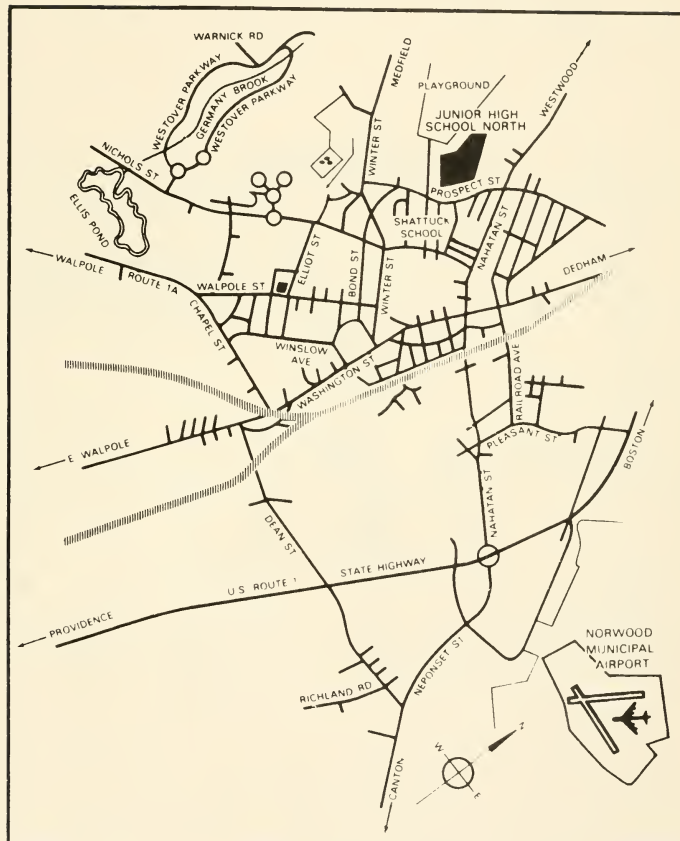
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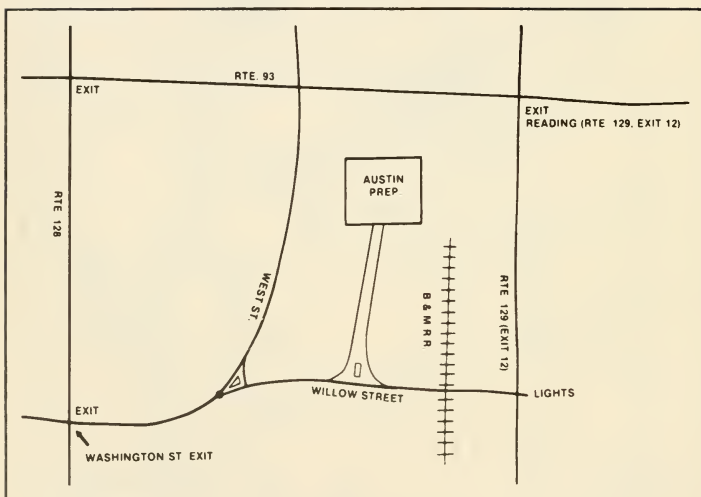
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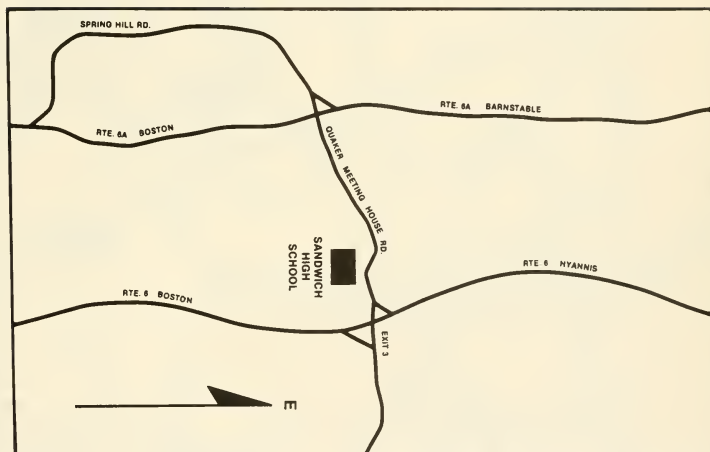
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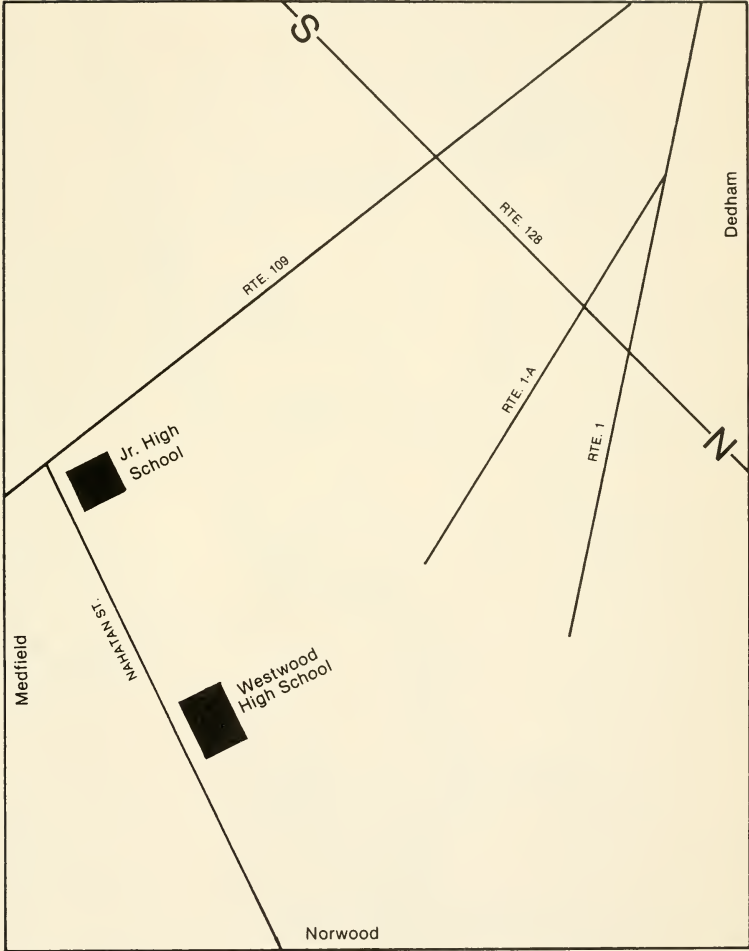
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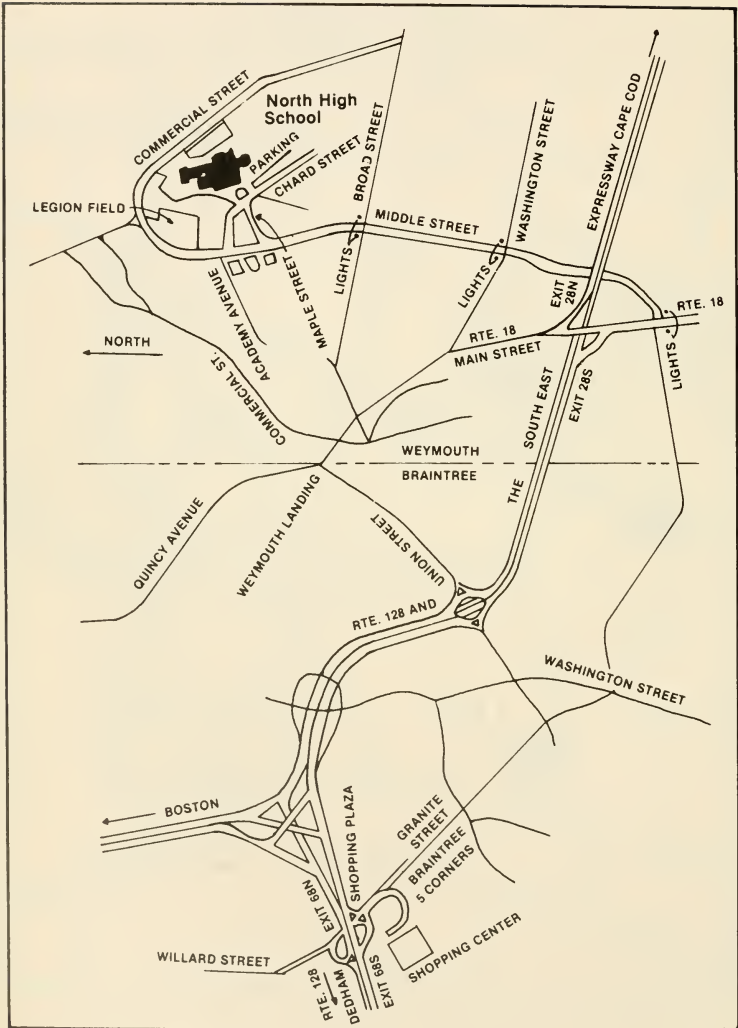
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Westwood High School



Weymouth Schools



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Graduate Programs in

Criminal Justice

Bulletin 1981-83

Northeastern University
Boston, Massachusetts

Graduate Programs in

Criminal Justice

Bulletin 1981-83

College of Criminal Justice
144 Knowles-Volpe Hall
Northeastern University
360 Huntington Avenue
Boston, Massachusetts 02115



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The University

Founded in 1898, Northeastern University is incorporated as a privately endowed nonsectarian institution of higher learning under the General Laws of Massachusetts. The state legislature, by special enactment, has given the University general degree-granting powers. The University is governed by a Board of Trustees elected by and from the Northeastern University Corporation, which is composed of nearly 180 distinguished business and professional men and women.

From its beginning, Northeastern University has made its dominant goal that of discovering community educational needs and meeting these in distinctive and serviceable ways. The University has not attempted to duplicate the programs of other institutions, but has sought to pioneer new areas of educational service.

A distinctive feature of Northeastern University is its Cooperative Plan of Education, initiated by the College of Engineering in 1909 and subsequently adopted by the other colleges of the University. This educational method offers students the opportunity to gain valuable practical experience as an integral part of their college program and often provides the means by which they may contribute substantially to the financing of their education. The Plan has been extended to the graduate level in engineering, professional accounting, business administration, law, and criminal justice.

In the field of adult education, programs of study have been developed to meet a variety of needs. University College offers evening courses—available at Northeastern since 1906—and adult day courses leading to the bachelor's degree. In addition to offering day undergraduate programs in Electrical Engineering Technology and Mechanical Engineering Technology, Lincoln College offers evening/part-time certificate, associate, and bachelor degree programs in technological areas. All formal courses of study leading to degrees through part-time programs are approved by the Basic College faculties concerned.

Graduate and Professional Schools

The eight graduate and professional schools of the University offer day and evening programs leading to the degrees that follow:

Graduate and Professional Schools

The Graduate School of Arts and Sciences offers the degrees of Master of Arts, Master of Science, Master of Science in Health Science, Master of Public Administration, and Doctor of Philosophy. The School also offers a Certificate of Advanced Graduate Study in Advanced Literary Study.

The Graduate School of Boston-Bouvé College of Human Development Professions offers the degrees of Master of Science, Master of Education, and Doctor of Education, in addition to the Certificate of Advanced Graduate Study.

The Graduate School of Business Administration offers the degree of Master of Business Administration.

The Graduate School of Criminal Justice offers the degree of Master of Science and, jointly with the College of Arts and Sciences, Doctor of Philosophy.

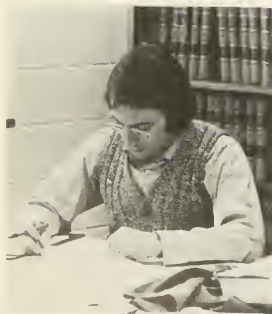
The Graduate School of Engineering offers the degrees of Master of Science, Doctor of Engineering, and Doctor of Philosophy, as well as the professional Engineer degree.

The School of Law offers the degree of Juris Doctor.

The Graduate School of Pharmacy and Allied Health Professions offers the degrees of Master of Science, Doctor of Philosophy, and Doctor of Pharmacy.

The Graduate School of Professional Accounting offers the degree of Master of Science in Accounting.

Research



Research is an important activity at Northeastern University, directly and indirectly supporting the instructional programs. The University is engaged in a wide variety of basic research projects in business, the physical and biological sciences, the social sciences, the humanities, the allied health sciences, and engineering, many of which are supported by extramural grants and contracts. The development of research and scholarship activities is fostered by the University Council on Research and Scholarship. The administration of these activities is coordinated by the Vice Provost for Research and Graduate Studies, and administrative services are provided by the Office of Research Administration.

The University has several institutes and centers devoted to research, including the Marine Science Institute, the Center for Applied Social Research, the Institute for the Interdisciplinary Study of Education, and the Institute of Chemical Analysis, Applications, and Forensic Science. The efforts underway in these units and in the academic departments are directed toward extending the frontiers of knowledge.

Graduate Programs in Criminal Justice

The Graduate School of Criminal Justice at Northeastern University offers a variety of full- and part-time programs of study. Students may choose from six major concentrations leading to the Master of Science degree: Administration and Planning, Criminology, Private Security, Correctional Counseling, and, beginning in the fall of 1982, Criminal Justice Research. In addition, the College of Criminal Justice offers a graduate program leading to the M.S. or Ph.D. degree in Forensic Chemistry jointly with the College of Arts and Sciences.

The master's program in Criminal Justice concentrates both on the problem of crime as a form of deviant behavior and on the criminal justice system that deals with it. The multidisciplinary program emphasizes a systems approach to criminal justice, stressing organization and management theory. Broad in concept, it encompasses such related disciplines as law, sociology, political science, psychology, criminology, and public administration.

The primary educational function of the program is to help prepare individuals for research, teaching, and administrative positions within a changing criminal justice system by acquainting students with important and innovative perspectives in the study and research of crime. Each of the available program specializations stresses the development of leadership qualities.

Faculty members in the Graduate School represent several academic disciplines. Teaching activities vary in nature, depending on the instructors' specific objectives. Their specialized interests help make possible a broad range of program offerings, including courses in such areas as community treatment, delinquency, correctional management, and criminology.

Briefly stated, the College of Criminal Justice endeavors through its graduate program to:

- Assist in developing leaders capable of assuming responsibility for policy planning and administration
- Help prepare individuals for criminal justice teaching in institutions of higher education

- Offer students the opportunity to acquire the necessary skills and knowledge for applied research, while assisting them in developing the ability to discern problem areas
- Offer a solid educational foundation for those who wish to pursue more advanced graduate study.

Full- or Part-Time Study

Unless specified otherwise, graduate study in Criminal Justice may be pursued in either a full- or part-time program. All concentrations require a minimum of forty-two quarter hours of credit in course work.

Full-time study allows for the completion of course work within one year, beginning in September and ending in September of the following year. In order to complete program requirements within this time frame, full-time students must devote a substantial portion of their time to academic study. Simultaneous work on a thesis is also expected during this period for students who choose to write a thesis.

Students who elect to study on a part-time basis may carry a maximum of two courses per quarter. Close consultation with a faculty adviser can help the part-time student determine a workable sequence of courses and the number of credits to be carried each quarter. All degree requirements must be completed within five years from the date of enrollment.

Graduate Criminal Justice Cooperative Program



The cooperative program in Criminal Justice offers graduate students the opportunity to work at a criminal justice position, receiving a normal salary for their work while, at the same time, pursuing graduate studies part time. The remuneration, of course, is geared to the position, and the University agrees to assist each student in finding a suitable criminal justice position. It is not possible, however, to guarantee a position for every student.

The Graduate Criminal Justice Cooperative Program operates on both a parallel and an alternating schedule. In the parallel program a student is on work assignment for approximately thirty hours per week. In addition, the student is required to carry an academic load of six hours per quarter. This combination of classroom study and work is followed in each quarter of the traditional academic year after the first quarter.

Parallel Schedule

Fall	School	12 quarter hours
Winter	Work/School	6 quarter hours
Spring	Work/School	6 quarter hours
Summer	Work	—
Fall	Work/School	6 quarter hours
Winter	Work/School	6 quarter hours
Spring	Work/School	6 quarter hours
		<hr/> 42 quarter hours

Students following the alternating cooperative program attend school full time one quarter and work full time in the next, and can complete requirements for the M.S. in Criminal Justice in seven quarters.

Alternating Schedule

Fall	School	12 quarter hours
Winter	Work	—
Spring	Work/Practicum I	3 quarter hours
Summer	Work/Practicum II	3 quarter hours
Fall	Work	—
Winter	School	12 quarter hours
Spring	School	12 quarter hours
		<hr/> 42 quarter hours

Every student who elects the Criminal Justice Cooperative Plan is required to take 92.828 and 92.838, Practicum I and II. These courses meet once a week and offer the students a format within which to examine their cooperative experiences. These courses should be taken while the student is working so that the Practicum can be related directly to the work experience.

Students interested in applying for a cooperative assignment should contact the Graduate Program Director at their earliest convenience.



Programs of Study

Concentration in Administration and Planning

This option is available for graduate students who are interested in administrative or policy-level positions in a criminal justice agency. Students who are considering teaching criminal justice at the college or secondary-school level should also consider this option, although the program does not lead to teaching certification. Specialization within criminal justice is achieved through electives.

Specimen Program (one year, full time)

Fall Quarter

92.904	The Criminal Justice Process
92.907	Theories of Criminology
92.913	Planning and Development in Criminal Justice
	Elective (3 q.h.)

Winter Quarter

92.841	Criminal Law
92.916	Statistical Analysis I
92.851	Juvenile Justice
	Elective (3 q.h.)

Spring Quarter

92.956	Evaluation Methods
92.905	Criminal Procedures
	Electives (6 q.h.)

Summer Quarter

Electives or Thesis (6 q.h.)

Concentration in Criminology

The concentration in Criminology is designed for students who are interested in advanced graduate work in the field or who are pursuing teaching careers at the college or secondary-school level. Students interested in further graduate study should consider doing a thesis while those preparing for teaching positions may wish to elect courses from the Administration and Planning track.

Specimen Program (one year, full time)

Fall Quarter

92.904	The Criminal Justice Process
92.907	Theories of Criminology
	Electives (6 q.h.)

<i>Winter Quarter</i>	
92.916	Statistical Analysis I
92.866	Theories of Delinquency
92.874	Theories of Law and Society
92.841	Criminal Law
or	
92.905	Criminal Procedures
<i>Spring Quarter</i>	
92.864	Criminal Behavior Systems
92.957	Research Methods
	Electives (6 q.h.)
<i>Summer Quarter</i>	
	Electives or Thesis (6 q.h.)

Concentration in Correctional Counseling



The concentration in Correctional Counseling is designed for students who wish to prepare for counseling work with adults or juveniles in community programs or in correctional settings. Both M.S. and C.A.G.S. programs are available in this area.

Specimen M.S. Program (one year, full time)

<i>Fall Quarter</i>	
53.804	Counseling Theory and Process
92.904	The Criminal Justice Process
92.907	Theories of Criminology
<i>Winter Quarter</i>	
56.960	Rehabilitation Practicum
53.815	Rehabilitation Counseling Strategies
92.916	Statistical Analysis I
<i>Spring Quarter</i>	
92.905	Criminal Procedures
92.956	Evaluation Methods
53.801	Tests and Test Procedures
<i>Summer Quarter</i>	
	Electives (6 q.h.) or Thesis

Specimen C.A.G.S. Program

Students enrolled in the C.A.G.S. program in Correctional Counseling have ordinarily completed all the requirements described for the M.S. degree. In addition, C.A.G.S. candidates are required to complete the following courses:*

50.809	Seminar in Adolescent Psychology, or
50.819	Theories in Developmental Psychology
53.808	Group Counseling
53.811	Family and Parent Counseling
53.831	Advanced Group Counseling
53.834	Advanced Theories of Behavior Change
53.835	Psychodiagnostic Measures
53.840	Advanced Fieldwork I
53.841	Advanced Fieldwork II
56.965	Occupational Placement
	Counseling or Criminal Justice Electives

*These courses are offered by the Graduate School of Boston-Bouvé College of Human Development Professions. Students should contact Boston-Bouvé Graduate School to receive course descriptions or additional information regarding these courses.

The successful completion of a written comprehensive examination is also a requirement for the C.A.G.S. program.

Concentration in Private Security

The Private Security concentration focuses on the security industry and offers preparation for students interested in a variety of leadership positions in this broad field.

Specimen Program (one year, full time)

Fall Quarter

92.904	The Criminal Justice Process
92.907	Theories of Criminology
92.913	Planning and Development in Criminal Justice
92.880	Administration of Private Security

Winter Quarter

92.881	Security Operations and Methods
92.916	Statistical Analysis I
92.841	Criminal Law
92.883	Private Security and the Community

Spring Quarter

92.905	Criminal Procedures
92.956	Evaluation Methods
92.882	Legal Issues in Private Security
92.884	Science and Technology in Private Security

Summer Quarter

Electives (6 q.h.)

Concentration in Criminal Justice Research



A concentration in Criminal Justice Research is being introduced in the 1982 Fall Quarter for students who are interested in working in the area of criminal justice research, either in public agencies or in private organizations. This concentration is also designed for students who wish to pursue further graduate study in criminal justice. Students selecting this concentration should consider doing a thesis.

Specimen Program (two years, part-time)

First Year

Fall Quarter

92.904	The Criminal Justice Process
92.907	Theories of Criminology

Winter Quarter

92.841	Criminal Law
92.916	Statistical Analysis I

Spring Quarter

92.905	Criminal Procedures
92.957	Research Methods

Summer Quarter

92.922	Statistical Analysis II
	Elective (3 q.h.)

Second Year	
<i>Fall Quarter</i>	
92.920	Quantitative Models Elective (3 q.h.)
<i>Winter Quarter</i>	
	Electives (6 q.h.) or Thesis
<i>Spring Quarter</i>	
92.956	Evaluation Methods Elective (3 q.h.)

Interdisciplinary Programs in Forensic Chemistry



Northeastern's Master of Science and Doctor of Philosophy programs in Forensic Chemistry are offered jointly by the Graduate School of Criminal Justice and the Institute of Chemical Analysis, Applications, and Forensic Science in the Graduate School of Arts and Sciences. For specific information regarding these programs, refer to pp. 31-36.

Course Descriptions

The following course descriptions, listed numerically by area of concentration, are representative of the courses offered in the graduate Criminal Justice program. As it is not possible to offer all courses each year, students are urged to consult the most current announcement of course offerings for specific information regarding available courses in any given quarter. All courses described here carry three quarter hours of credit.

Administration and Planning

92.810 Penology and Corrections

This course deals essentially with the process of incarceration as well as the prison community. Consideration is given to management, operation effects, and effectiveness of different types of institutions. The prison and its social structure is also examined as are modern correctional approaches and current rehabilitation practices.

92.813 Correctional Administration

An intensive coverage of the many problems and dilemmas which confront the correctional organization. Topics for discussion include such issues as basic problems of correctional organization, organizational development and analysis, management by objectives, planning and budgeting systems, management style and personnel development, special problems of jails and houses of corrections, institutional programs, classification, correctional policy, and the future of imprisonment.

92.817 Law Enforcement and the Community

This course examines the nature, problems, and present procedures associated with police-community relations in order to develop more efficient and effective policing. The course utilizes the lecture-forum technique with assigned readings, group discussions, and project development and critiquing.

92.826 Community Corrections

This course examines the concept of community corrections, utilizing historical, philosophical, and pragmatic perspectives and including an analysis of the alternatives to imprisonment or institutionalization. For course purposes, community-based programs are defined as programs aimed at reducing the occurrence of criminal and delinquent behavior through prevention, rehabilitation, reintegration,

and/or diversionary services in noninstitutional settings which make maximum use of existing and potential community resources.

92.827 Police Functions in Democratic Society

This course considers the sociopolitical context within which American police departments developed in the nineteenth century as well as the changing forces that shape modern departments. An over-arching question guiding the course involves the implications of democratic institutions and traditions for policing in America. The organization of several different kinds of departments are contrasted, and the implications of these different types of departments for police performance are examined. The rigors of police work, together with the social-psychological adjustments that officers at different ranks make, is also considered.

92.829 Court Management and Administration

This course involves a study of the organization and structure of the courts, including the problems, policies, and practices of the criminal court system. Particular emphasis is placed on the lower criminal court. Issues in court management, including personnel problems, scheduling, role of juries and witnesses, use of planning and management techniques, and court reform, are reviewed.

92.832 Probation and Parole

An examination of the nature, objectives, means, and problems of probation and parole administration and management.

92.836 Women and the Criminal Justice System

An examination of the roles of women in the criminal justice system. The course focuses on women as offenders, as victims, and as agents of social control; on both theory and practice; and on both historical and contemporary issues.

92.842 Terrorism

The course is divided into two sections, the first part of which examines the sociology of terrorism, including funding, intelligence gathering, weapons and tactics, informers, and countermeasures. Special attention is also given to the media which report the news, yet seem often perilously close to inciting further terror. The "terrorist personality," the literary depiction of terrorism, and the doctrine of systematic terrorism, as well as its current interpretations and common patterns, motives, and aims, are also examined.

The second part of the course is more practical in orientation. As such, it concentrates on identifying technologies of counterterrorism, discussing incident management needs, and recommending ways to lessen the risk of nationally disruptive acts.

The course attempts to challenge accepted assumptions and to forecast changes in terrorist activities that may affect tomorrow's headlines.

92.851 Juvenile Justice

This course critically analyzes the policies and practices of agencies involved in processing young people through the juvenile justice system. Specific attention is devoted to police practices, detention, intake, diversion, adjudication, and disposition of juveniles within the justice system. In addition, the course focuses on the historical development of the juvenile justice system and assesses current trends and proposals for reform.

92.860 Conflict Management

An examination of problems in conflict management, including concepts and definitions of social conflict and comparisons between functional and dysfunctional conflict. Inquiries into representative conflict management strategies and techniques are made, affording the opportunity to relate general theory and research results to practical situations of criminal conflict management. The course generally relies on a variety of heuristic techniques, including scenarios, role playing, and the use of audiovisual media.

92.863 Organized Crime

An in-depth study of the phenomenon of "organized crime." The course is approached from a law enforcement perspective, stressing, however, the general criminal justice implications. The corruptive influences of organized crime are dealt with, as well as aspects of overzealous enforcement that may lead to violations of constitutional safeguards. The scope of intelligence activities and the role of computerized information concerning organized crime are explored, with special attention given to the sensitive privacy issues involved. Problems of definition, organizational structure, operating methods, participant identification, and legal limitations are discussed. The effect of so-called "victimless crime" statutes in enhancing the economic viability and public tolerance of organized crime is also considered, and present strategies are evaluated and dramatic new strategies suggested for the control or elimination of this pervasive phenomenon. Finally, the relationship of organized crime to the continuing increase in both "street" and "white collar" crime is assessed.

92.873 Personnel and Labor Relations in Criminal Justice

This course helps to provide the student with basic skills in personnel management, selection, and placement. It is also intended to help students develop an understanding of the social psychology of organizations concerned with law enforcement, the courts, or corrections, and to help them develop familiarity with critical issues in labor relations and collective bargaining.

92.904 The Criminal Justice Process

An analysis of the criminal justice process from prevention and arrest to release after incarceration. Concentration is on a legal, sociological, and policy approach to understanding criminal justice. The philosophies, practices, procedures, and

issues of agencies responsible for the administration of justice are viewed, and the effectiveness of different approaches to crime control is examined.

92.913 Criminal Justice Planning and Development

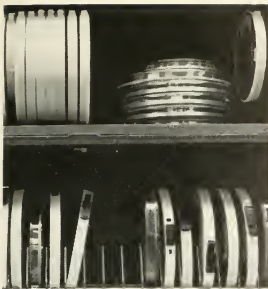
An introduction to planning techniques and their impact on criminal justice program development, currently, and for the future. An analysis of policy and decision making pertaining to criminal justice organizations and agencies is examined, as is the extent of planning for crime control at local, state, regional, and national levels. The peculiar nature of urban crime problems in relation to planning is also reviewed, involving identifying problem areas in the field of criminal justice, diagnosing their causes, and formulating solutions. In addition, the course examines alternative strategies and mobilization of resources necessary to effect change in the system.

92.960 Criminal Justice Management

This course introduces the fundamentals of management as applied to the field of criminal justice, with a specific focus on the need for criminal justice improvement through the management of change. Special attention is given to planning, organizing, staffing, directing, coordinating, keeping records, and budgeting (POSDCORB) within the various functional agencies of criminal justice. The latest developments in administration and management are discussed as they apply to criminal justice operations, both at the administrative and supervisory levels. Management tools such as Program Evaluation Review Techniques (PERT); Gantt Charts; Operations Research; Planning, Programming, Budgeting Systems (PPBS); and the use of sophisticated computer software to facilitate both routine operations and management decision making are explored. Understanding and using the computer and systems technology for problem solving, evaluation, personnel assignments, perpetual inventories, and management research constitute a major emphasis of the course.

92.961 Budget and Financing in Criminal Justice

An examination of the principles and practices of budgeting in the various functional areas of criminal justice. Financial operations are dealt with in depth, including such matters as obtaining resources through budget development and presentation. Distinctions between capital budgets and expense budgets and among zero budgeting, line-item budgeting, and program budgeting are drawn. Important financial concerns such as cost effectiveness, management by objectives, and critical path method (CPM) are discussed. Special attention is given to budget projections as planning tools for obtaining grants, as well as a means of facilitating needed change within the present structures of criminal justice agencies. The utility of budgets as evaluative mechanisms is stressed; and the role of budgeting in the financial control of organizations is discussed.



92.916 Statistical Analysis I

Introduction to probability and statistics. Topics to be covered include measures of central tendency and dispersion; probability and the binomial, Poisson, exponential, and normal distributions; sampling distributions and hypothesis testing; and correlation and regression.

92.922 Statistical Analysis II

This course is a continuation of Statistical Analysis I. Multiple regression and its extensions, discriminant analysis, factor analysis, analysis of variance, and the analysis of contingency tables are discussed in conjunction with computer applications to criminal justice data.

92.923 Quantitative Models in Criminal Justice

This course reviews some of the advanced quantitative frontiers in the field of criminal justice as well as the methodological contributions of allied fields. In particular, such approaches as reliability models of recidivism, stochastic models of criminal careers, economic models of criminal behavior, econometric models of the criminal justice system, and deterrence models are addressed. An extensive coverage of published and unpublished literature is central to the course.

92.956 Evaluation Methods in Criminal Justice

This course addresses some of the nontechnical, yet crucial, issues in the research enterprise. Topics to be discussed include ethical problems surrounding research in criminal justice; the design, procedures, and politics of evaluation research in criminal justice; and funding sources and the generation and administration of grants and contracts. Students are expected to participate in evaluation exercises and to prepare proposal narratives and budgets.

92.957 Research Methods in Criminal Justice

This course surveys a range of methodological approaches to criminal justice research. Various research strategies, including sample surveys, observation, historical research, experiments, and evaluation, are discussed and highlighted with examples from the literature. Also reviewed are various sources of criminal justice data, and their reliability and validity are assessed. Last, various data analytic strategies (including tabular analysis and nonparametric methods) are emphasized within the context of computer assignments.

Criminology

92.814 Theories of Punishment

An overview of theories and issues in punishment with a focus on topics of contemporary interest as well as the historical roots of current approaches. Trends and fashions in both the theory and the form of punishment are considered. Reading materials are drawn from a variety of

fields, including philosophy, politics, literature, law, and empirical criminal justice.

92.823 Victimology

This course critically examines theories of victimology and current research on crime victims. Special attention is devoted to such issues as victim vulnerability and victim culpability. In addition, implications of victim-oriented research for the administration of justice are assessed as are current programs offering victim services such as restitution and compensation.

92.864 Criminal Behavior Systems

This course examines offender and offense patterns within nine general crime categories: (1) violent personal, (2) conventional property, (3) public order, (4) political, against the government, (5) political, by the government, (6) occupational, (7) "organized," (8) professional, and (9) sexual. The course is intended to serve as a detailed introductory survey to help familiarize graduate students with a broad range of crime types and criminal behavior systems as well as some of their classic and contemporary analyses.

92.866 Theories of Delinquency

A survey of some of the more significant trends in delinquency theory. Theoretical constructs include cultural strain, bond control, subcultural theory, differential association, labeling theory, and conflict theory. In addition, status, personality, race, and sex factors in delinquency are addressed as well as the effect of processing and treatment on delinquents in the juvenile justice system.

92.874 Theories of Law and Society

This course is designed to introduce students to theories, issues, and research findings in the sociology of law. It begins by placing law in the more general context of social control systems, by raising basic issues about the nature of law, and by focusing on the relation between law and social values. Examination also focuses on some important theories of the nature of law. Sessions devoted to the sociology of the legal profession and the criminal law in action are followed by an in-depth examination of studies of the formulation of criminal laws. These topics are followed by examination of instances of racism, sexism, and classism in the formulation and practice of criminal law and by discussion of the relation between law and social change.

92.907 Theories of Criminology

Focuses on the use of scientific methods in the study and analysis of regularities, uniformities, patterns, and causal factors related to crime, the criminal, and social reactions to both. Critical contributions to the study of crime, criminals, and the treatment of offenders are analyzed as they emerge from writings in such disciplines as biology, psychology, psychiatry, endocrinology, law, sociology, and anthropology.

92.908 Comparative Criminology

This course considers crime and its control from the comparative perspective, viewed both historically and contemporaneously. The development of Roman legal institutions, the emergence of common law and other legal systems (the civil law and the socialist legal system), and the emergence of American legal institutions in the nineteenth century are all examined. The crime problems in developing societies (India, nineteenth-century Europe and America) are contrasted with those in developed societies (modern Europe and America), and the impact of a world economic system on the two is explored. The advantages of comparative analysis are developed.

Law



92.841 Criminal Law

This course is designed to help familiarize students with the fundamental principles and concepts of criminal law in the United States. It also focuses on the relationship of the individual to the state and includes an examination of the general framework of criminal law.

92.843 Juvenile Law

An examination of the legal relationship between the juvenile offender and the state. The course covers case and statutory law, as well as constitutional due-process standards in juvenile proceedings. Areas covered include jurisdiction, prejudicial process, waiver of jurisdiction adjudication, disposition, and postdispositional issues, including right to treatment.

92.872 Criminal Evidence

This course is designed to introduce students to the field of criminal evidence. Students are expected to read and brief cases and must be prepared to discuss them in class. The readings, class lectures, and discussions help familiarize students with the various procedures and rules related to the trial of a criminal case.

92.905 Criminal Procedures

An in-depth study of constitutional issues in the administration of criminal justice. Topics to be considered include selected provisions of the United States Constitution, with particular emphasis on Amendments 4, 5, 6, and 14, and on questions of electronic surveillance, right to counsel, line-up, bails, and right to speedy trial.

Private Security

92.880 Administration of Private Security

This course offers a comprehensive overview of private security theories, operations, and practices, with special emphasis on the administration and management of security. The philosophical background, history, and current role of

private security are explored, as well as the role and status of the security manager in threat assessment, risk prevention, and the protection of assets. Functional-area security systems, law, science and technology for security, and issues, standards, goals, and challenges for the future are dealt with in the course. Security systems are considered, particularly as these "open" systems relate to criminal justice and the environment. The security manager is conceived of as the prime mover toward professionalization and improved management and administration of security operations, and as the advocate of contemporary organizational theories embracing research and the systems approach.

92.881 Private Security Operations and Methods

A study of the application of physical, personnel, communication, and transportation security methods to functional-area security systems. Analysis of industrial, commercial, institutional, transportation, and communication security systems to identify commonalities and specific needs. Special attention is given to major areas, including banks and financial institutions; airports and airlines; commercial complexes; educational, hospital, hotel, museum, and library facilities; manufacturing, transportation, and retail businesses; computer and communication networks; and governmental installations, contractors, and grantees. Additional insights are sought in connection with emergency planning, substance abuse, organized crime, and terrorism as they affect the protection of executives and their businesses. Issues related to the professional development of security in all these areas are discussed.

92.882 Legal Issues in Private Security

Helps students acquire a comprehensive understanding of fundamental issues in the "legal-intensive" field of security. The course assumes that the security profession must be structured around a knowledge, and scrupulous observance, of constitutional protections. Emphasis, therefore, is on the security implications of civil rights, civil liberties, privacy, legality, and discretion as the cornerstones of a viable system of professional ethics.

92.883 Private Security in the Community

This course introduces students to community relations concepts specifically relevant to the expanding role of private security. Study focuses on productive relationships between private security and both official and unofficial community agencies and organizations that contribute to establishing a comprehensive security/community relations program. Environmental and sociological impacts are considered, as well as the psychology of employees and individuals in the community as it has relevance to an open system of private security that is supportive of public interests.

92.884 Science and Technology in Private Security

This course offers the student insights into private security applications of the latest advances in electronic, physical,

and behavioral sciences. New technical developments inspire advanced applications increasing both the effectiveness and the cost benefit of prevention and protection, detection and prosecution. Legal and ethical questions related to the employment of these powerful measures are discussed, particularly as they relate to the right of individual privacy in a democratic society, and some consideration is given to anticipating the possible utilization of these significant new techniques by criminals and foreign agents.

Special Topics



92.828, 92.838 Field Practicum I and II

Field instruction in a criminal justice agency where instruction may be offered through administrative, research, teaching and/or related activities. Students have the opportunity to apply theoretical concepts in a practical, applied fashion by observing and contributing to the daily activities of operating agencies and organizations.

92.875 Proseminar in Criminology

This course aims to help strengthen students' skills in writing and critical analysis. Each student is expected to prepare an exhaustive, critical review of literature on a chosen topic in criminology (broadly defined). The class as a whole participates in a critique of each student's paper.

92.998, 92.999 Directed Study I and II

An independent study offers the student the opportunity to bring individual, concentrated attention to a particular topic as arranged and agreed upon in advance by a faculty member and the student. This option is generally recommended when a particular course of study is not available or when the student desires a more intensive analysis of a particular subject. The independent study has the advantage of allowing students flexibility in learning and developing their own academic programs.



General Regulations

The general regulations and minimum requirements for all University graduate programs are established by the North-eastern University Graduate Council. In some matters, each graduate school's committee is allowed discretion to establish regulations within the limits defined by the Council. The following regulations and academic requirements have been formulated in accordance with this general policy.

Policy Guidelines

Application

All applicants should address inquiries to the Graduate Program in Criminal Justice. Application forms and other information will be promptly mailed.

Admission Requirements

Applications for graduate study in Criminal Justice are reviewed by the Graduate Admission Committee and must include:

1. A completed application form accompanied by a non-refundable \$25 application fee.
2. Official transcript(s) from accredited institution(s) as evidence of earning a baccalaureate degree with a grade point average of 3.0 or higher preferred.
3. Official scores from the aptitude test of the Graduate Record Examination, the Law School Aptitude Test, or the Miller Analogies Test. Above-average scores are preferred.
4. Three letters of recommendation from academic, professional, or personal sources. At least one academic reference is required.
5. An essay of not more than 400 words expressing academic and personal objectives.

No one factor is used to select candidates for the program. The Graduate Admissions Committee receives all applications and considers a variety of factors, including previous work experience and professional potential, in addition to academic record and test scores.

Consideration for admission is given only after all application materials, including the \$25 application fee, have been received by the Graduate Program in Criminal Justice.

Students whose credentials meet the above criteria are classified as full- or part-time regular students. Students

whose credentials do not meet the above criteria may be admitted on a part-time provisional basis. After completing nine quarter hours of study, their status will be reviewed, and students will be admitted as regular degree candidates or dropped from the program. Provisional students must achieve a grade of B (3.0) or better in each course.

Registration

Accepted applicants must register for classes within the period listed on the school calendar. Registration is not permitted after the designated deadline for each quarter.

Residence Policy

All work for advanced degrees must be completed in residence at the University unless approval for work at another institution has been obtained from the Director of the Graduate Program in Criminal Justice. Students who are in residence and use the facilities of the University must register for such work.

Grading System

A student's performance in graduate courses is recorded by the instructor, according to the following numerical equivalents:

- A (4.000) This grade is given to those students whose performance in the course is of very high graduate caliber.
- A- (3.667)
- B+ (3.333)
- B (3.000) This grade is given to those students whose performance in the course is at a satisfactory level.
- B- (2.667)
- C+ (2.333)
- C (2.000) This grade is given to those students whose performance in the course is not at the level expected in graduate work.
- C- (1.667)
- F (0) This grade is given to those students whose performance in the course is unacceptable.

In addition, the following letter designations are used:

- I Incomplete
This grade is given to those students who fail to complete the work of the course.
- L Audit without credit
- S Satisfactory without quality designation
- U Unsatisfactory without quality designation

Grades S and U may be used for the first quarter of a two-quarter sequence in which the grade for the second quarter applies to both the first and second quarters of the sequence.

Class Hours and Credits

All credits at Northeastern University are entered as quarter-hour credits, which are equivalent to three-fourths of a

semester hour, i.e., twelve semester hours equal sixteen quarter hours.

All classes in the Graduate School of Criminal Justice meet on a quarterly basis for approximately twelve weeks, except during the summer session, which runs for six weeks. The academic calendar, available in the Registrar's Office (120 Hayden Hall) should be consulted to determine the starting dates of each quarter.

Program Continuity

Students are expected to maintain continuous progress toward a degree. Any student who does not attend Northeastern for a period of one year must reapply for admission.

Withdrawals

To withdraw from a course, students must fill out an official withdrawal form obtained at the Registrar's Office, 120 Hayden Hall. Withdrawals may be made through the ninth week of the quarter. Students are withdrawn as of the date on which the form is returned to the Office of the Registrar. Ceasing to attend a class or simply notifying the instructor of intention to withdraw does not constitute an official withdrawal.

A grade of W is given to students who withdraw after the fifth calendar week of a quarter.

Changes in Requirements

The continuing development of the graduate program requires occasional revisions in curricula. In each new bulletin, some changes are indicated. When changes impose no hardships on students and school facilities permit, students are expected to meet the requirements of the most recent bulletin. If students find it impossible to meet the requirements, the changes listed in the bulletin for the year in which they enrolled become binding.

Application for Degree

Students must officially apply for a degree by completing a commencement card. If the commencement card is not filed with the Registrar's Office on or before the applicable date listed on the calendar, there is no assurance that the degree will be granted in that particular year even though all other requirements have been fulfilled.

Academic Requirements

All candidates for the Master of Science degree in Criminal Justice must complete a total of forty-two hours of course credit, of which six quarter hours of credit may be satisfied by completing an acceptable thesis. In addition, satisfactory performance on a written comprehensive examination is mandatory for all degree candidates. Full- and part-time students may apply to take the comprehensive examination when they have completed thirty-six hours of approved course work, including all required courses.

Graduate students in Criminal Justice must maintain at least a B (3.000) average in all course work to remain in the program. They must also maintain a B average in their required courses in the graduate program. Although C – (1.667) grades are acceptable in the program, students must balance them with A grades to maintain the required B average. Students who fall below a B (3.000) average in their overall course work or in their required courses are subject to academic review. After review, the student may be allowed to continue in the program, may be placed on academic probation, or may be dismissed. The grade of F is not acceptable in the graduate program, and students who receive an F in any course are subject to academic review.

Students who complete the required forty-two quarter hours with less than a B (3.000) average may take no more than an additional six quarter hours of course work to obtain the required grade-point average.

Students receiving an Incomplete grade in any graduate course offered by the College of Criminal Justice must remove the deficiency for which the Incomplete was reported within one year from the quarter in which it was received. If it is not removed within that time, the grade is recorded permanently and irreversibly as an I grade. Any exception to this policy on incomplete grades must be recommended by the Academic Standing Committee of the college offering the course and must be forwarded by the college's dean, in writing, to the University Registrar for implementation.

Furthermore, the records of students receiving three or more I grades in one year must be reviewed by the Graduate Committee for the purpose of assisting the student to remedy the deficiencies.

The University does not process grades for students who are not officially registered by the end of the fifth calendar week of a quarter.

Program Selection

Upon acceptance as a degree candidate, students are assigned a temporary adviser in their major area of concentration. In consultation with the adviser, students develop a program of study, including program objectives, anticipated courses, and estimated dates for completing degree requirements. The temporary adviser may also help students select a thesis committee to assist them in the development and completion of a thesis.

Transfer Credit

Students who have been enrolled in other graduate degree programs, have already earned a graduate degree, or have taken graduate courses on a nondegree basis, may be granted transfer credit at the discretion of the Graduate

Committee. A maximum twelve quarter hours of credit from another accredited institution are acceptable, provided the credit meets specified requirements. Courses should be the equivalent of, or comparable to, courses offered in the Graduate School of Criminal Justice. A request for transfer of credit, available at the College of Criminal Justice, together with official transcripts and pertinent course descriptions from the institution(s) attended, must be provided before committee action is taken.

Thesis

Students may choose to submit a thesis that reveals their research ability and, simultaneously, increases the scope of their individual specialization. A thesis committee, composed of a chairperson and one or two members of the faculty proposed by the student, is appointed to assist the student in developing ideas. The completed thesis must be approved by the Thesis Committee, the Director of the Graduate Program, and the Dean of the College of Criminal Justice.

Financial Information



Tuition

Tuition for graduate courses in the College of Criminal Justice is currently (1981-82) \$118 per quarter hour of credit. Tuition for audited courses is the same as for courses taken for credit.

Tuition statements are mailed to students by the Bursar's Office and are payable by check to Northeastern University on or before the date specified on the statement.

Fees

An application fee of \$25 (nonrefundable) is charged to all students applying for admission to the Graduate School of Criminal Justice. No application materials are processed until this fee is received. Checks should be made payable to Northeastern University and mailed, together with the application, to the Graduate School of Criminal Justice, 144 Knowles-Volpe Hall, Northeastern University, 360 Huntington Avenue, Boston, Massachusetts 02115.

Other fees include a charge of \$50 for late payment of tuition, a fee of \$10 for deferred tuition (with approval of the Bursar), and a graduation fee of \$25 for all degree candidates, payable by the applicable date listed on the academic calendar, usually four weeks before commencement.

In addition, there is a one-time fee of \$100 charged to new graduate international students, payable upon acceptance at Northeastern.

Full-time students are charged \$12.50 per quarter for the services available at the Student Center. The same fee for teaching assistants and research fellows is \$6.25 each quarter. Part-time students on the Boston campus are charged \$.75 per quarter.

All full-time students, including those with assistantships and fellowships, also pay a nonrefundable University Health Services fee of \$200 per year for Blue Cross-Blue Shield coverage. Payment of this fee entitles the student to medical care provided by the University Health Service.

All financial obligations to the University must be cleared before graduation.

Policy Regarding Changes in Tuition and Fees

Tuition rates and fees are subject to revision by Northeastern University's Board of Trustees at any time. Changes in tuition and fees normally become effective at the beginning of the school year following the year in which the changes are announced.

Refunds

Students may be eligible for a tuition credit or refund for courses from which they officially withdraw on a pro-rated basis, according to the following schedule. (This schedule varies during the summer quarter.)

Withdrawal during first calendar week of classes	100% credit*
Withdrawal during second calendar week of classes	75% credit
Withdrawal during third calendar week of classes	50% credit
Withdrawal during fourth calendar week of classes	25% credit

Students withdrawing after the fourth calendar week of classes are not entitled to a tuition credit.

Students who prefer to receive a refund (rather than credit toward future registration) must file a petition with the Office of the Bursar, 245 Richards Hall.

Financial Aid and Graduate Assistantships

A limited amount of financial aid is available to graduate students in the College of Criminal Justice through loans, grants, and graduate assistantships. Graduate assistantships in the College are available only to full-time students selected on the basis of academic and professional background. Students with high academic achievement are invited to apply each year. The graduate assistantship carries a full tuition scholarship for four consecutive quarters, in addition to which a student receives a stipend of approximately \$4,000 over a three-quarter period as payment for the performance of assigned duties, including counseling students and assisting faculty in course preparation and course-related research.

Students interested in assistantships must apply directly to the Graduate School, in writing, at the time of their application. Students desiring additional information regarding other forms of financial aid should contact the Office of Financial Aid, 254 Richards Hall.

Interdisciplinary Programs in Forensic Chemistry

The Master of Science and Doctor of Philosophy programs in Forensic Chemistry are offered jointly by the College of Criminal Justice and the Institute of Chemical Analysis, Applications, and Forensic Science in the College of Arts and Sciences. Degrees are awarded jointly by both Colleges; however, course study and training are centered at the Institute of Chemical Analysis, Applications, and Forensic Science.

Master of Science Program



The Master of Science program in Forensic Chemistry is available on both a full- and part-time basis. Both programs require a minimum of forty-two quarter hours of graduate credit, including a master's paper, and an internship in an approved forensic laboratory, although this internship may, on occasion, be waived for full-time students who have had forensic experience.

Full-time students can generally complete the program in fifteen months by following a schedule of courses similar to that outlined in the specimen program that follows. Part-time students generally require approximately two years to complete the program. Part-time enrollment may be especially appropriate for chemists and other professionals interested in a career in forensic chemistry or for crime laboratory personnel who wish to obtain an advanced degree in this field.

Curriculum Description

The M.S. curriculum in Forensic Chemistry is designed to help broaden the student's overall scientific background as well as to offer an opportunity for intensive study in forensic chemistry as it is used in criminalistics, toxicology, and related professional fields. The course of study concentrates on the application of analytical chemistry, pharmacology, and materials science to forensic problems, including an examination of both traditional and modern methods of forensic chemistry. The program also includes a variety of courses designed to help provide students an overview of the criminal justice system and the role of science in investigative and judicial proceedings.

Laboratory sessions constitute an integral portion of the program requirements. Time spent in the laboratory provides students the opportunity to familiarize themselves with actual procedures used by criminal and regulatory agencies in the analysis of physical evidence.

Laboratory Internship

To provide a balance to classroom and laboratory activities and offer students an opportunity to acquire on-the-job experience, the Forensic Science curriculum includes a three month internship period of in-service training at recognized federal, state, or local forensic laboratories cooperating with Northeastern. Typically scheduled during the summer quarter of the first year of study, following the completion of basic courses, the internship provides laboratory experience that may, in some instances, serve as the basis for the master's paper to be completed in the subsequent fifth quarter of the program. Frequently, professional contacts established in the internship period continue after graduation.

Specimen Program (full time)

First Year

Fall Quarter

- 12.810 Modern Methods of Analysis*
- 93.950 Forensic Materials
- 92.904 Criminal Justice Process
- 73.814 Concepts in Pharmacology I

Winter Quarter

- 92.931 Crime Scene Investigation
- 93.951 Forensic Chemistry Techniques I*
- 92.841 Criminal Law
- Elective

Spring Quarter

- 93.952 Forensic Chemistry Techniques II*
- 92.921 Arson, Explosives, and Gunshot Residue
- 93.953 Seminar
- 92.872 Criminal Evidence
- Elective

Summer Quarter

In-Service Training

Second Year

Fall Quarter

- 93.954 Master's Paper
- 10.8H3 Biostatistics
- Elective

*Includes laboratory

Forensic Chemistry Course Descriptions

The courses listed in the preceding specimen program are described below, except for some designated 92.xxx, which are included in the general course descriptions for the Graduate School of Criminal Justice (pp. 15-23). Students should note that the number of quarter-hour credits varies from one course to another.

10.SH3 Biostatistics (2 q.h.)

Methods of statistical inference as they are applied to biology and the medical sciences.

12.810 Modern Methods of Analysis

(3 q.h. including laboratory)

Offers training in a wide variety of modern methods of instrumental analysis, including extensive "hands-on" laboratory experience. Diverse activities include spectroscopy (IR, UV-visible, luminescence, atomic absorption, and mass spectrometry); separations (gas and modern liquid chromatography, TLC, specialized detectors); and X-ray methods (powder diffraction, microsamples, X-ray fluorescence).

73.814 Concepts in Pharmacology I (2 q.h.)

In-depth coverage of the fundamental principles of pharmacology, focusing on pharmacodynamics, including dose-effect relationships and drug-receptor interactions. Pharmacokinetic concepts, including absorption, distribution, and elimination, are discussed, as well as common pathways of drug metabolism. Other topics include pharmacogenetics, drug resistance, tolerance, and physical dependence. An overview of experimental and clinical drug evaluation in humans is presented. The course is prerequisite for succeeding courses in pharmacology and toxicology.

92.921 Arson, Explosives, and Gunshot Residue (3 q.h.)

Emphasis is on the chemistry of explosives, propellants, accelerants, and other combustible materials. Sessions include the recovery, analysis, and evaluation of physical evidence from fires, explosions, and residues remaining on hands or clothing after the firearm has been fired. (Prep. 12.810 and 93.950)

92.931 Crime Scene Investigation (3 q.h.)

Procedures for searching, sketching, and photographing various crime scenes. Recognition, collection, marking, and handling of physical evidence, emphasizing the importance of maintaining the chemical integrity of each sample. Examples of the types of analyses, their value, and limitations to be expected from a forensic laboratory. No knowledge of chemistry is required.

93.950 Forensic Materials (2 q.h.)

Fundamental types of solids, such as metals, ceramics, minerals, and organic solids, including polymers, plastics, and fibers; their properties and analyses, using modern techniques. Methods of bulk and particle analysis. Elements of forensic geology. Forensically important materials, such as alloys, glass, soils, fibers, wood, paper, and rubber, and determining their chemical and physical properties.

93.951 Forensic Chemistry Techniques I

(4 q.h. including laboratory)

Identification and characterization of micro- and

macroscopic items of physical evidence, based upon their measurable properties; optical, comparison, polarizing, and scanning electron microscopy of glass, soil, hairs, and fibers; document examination, including paper and inks; analyzing paints, plastics, and varnishes. Introduction to chemical methods used in firearm and tool-mark examination and in fingerprinting.

93.952 Forensic Chemistry Techniques II

(4 q.h. including laboratory)

Introduction to the analysis of biological items of physical evidence. Pharmacology and toxicology of medicinal and chemical substances having potential for misuse or abuse, including gaseous and heavy metal poisons, narcotic depressants, hallucinogenic agents, and tranquilizers; their isolation and identification from dosage forms and forensic samples. Forensic serology and analysis of other physiological fluids; current isoenzyme identification, and dried blood protein subfactor analysis.

93.953 Seminar (1 q.h.)

Oral reports by participants on current concepts in forensic chemistry and criminalistics.

93.954 Forensic Science Master's Paper

(4 q.h.)

An original work based upon library and/or laboratory research. Particular emphasis is placed on originality, clarity of thought, and simplicity of presentation, which is essential in presenting expert testimony in court.

Elective Courses

Students are required to take three additional courses from the following list of electives. Other graduate or upper-level undergraduate courses may be selected with *prior* approval of the program director.

2.970, 2.971	Material Science and Engineering I, II
12.821	Analytical Separations
12.822	Electroanalytical Chemistry I
12.823	Optical Methods of Analysis I
12.824, 12.825, 12.826	Special Topics in Analytical Chemistry I, II, III
12.861, 12.862	Advanced Organic Chemistry I, II
12.863	Physical Organic Chemistry
12.866	Spectrometric Identification of Organic Compounds
12.901, 12.902, 12.903	Polymer Chemistry I, II, III
72.834, 72.835	Advanced Clinical Chemistry I, II
72.861	Advanced Medicinal Chemistry I (CNS Depressants)
72.862	Advanced Medicinal Chemistry II (Autonomic Drugs)

73.815	Concepts in Pharmacology II
73.816, 73.817	Concepts in Toxicology I, II
73.844	Drug Metabolism
90.821, 90.822, 90.823	Biochemistry I, II, III
92.913	Criminal Justice Planning and Development
93.956, 93.957	Directed Study in Forensic Chemistry

Entrance Requirements

Students interested in being admitted to the M.S. program in Forensic Science must have earned a baccalaureate degree in a physical or life science from an accredited institution in a program including courses in general, organic, and analytical chemistry as well as physics and calculus. Applicants who may have deficiencies in one or more of these areas may be provisionally accepted and are expected to complete the appropriate preparatory courses during their program of study.

Facilities

A wide range of specialized teaching and advanced research facilities is available to Forensic Chemistry students through the Institute of Chemical Analysis, Applications, and Forensic Science, with additional support from collaborating academic departments such as Chemistry, Medicinal Chemistry, and Criminal Justice. Available standard and specialty instrumentation includes infrared, ultraviolet-visible, and fluorescence spectrophotometers; gas, liquid, and thin-layer chromatography; comparison, polarizing, and scanning electron microscopes; X-ray cameras and diffractometers; atomic absorption spectrometers; and a computer-controlled mass spectrometer.

Doctor of Philosophy Program



The first program of its type in the United States, Northeastern's Ph.D. program in Forensic Chemistry offers students advanced interdisciplinary preparation for leadership and research positions in the field of forensic science. Three distinct areas of specialization are available: Analytical Chemistry, Forensic Materials Science, and Forensic Toxicology. These options are designed to offer preparation based on the perceived needs of the forensic chemistry profession and the technical expertise required for the pursuit of significant Ph.D. thesis research.

Program Description

The Ph.D. program is designed primarily to meet the needs of three groups of entering students; within these groups, individual programs are planned for each participant, according to the individual student's educational requirements.

1. Students holding a Bachelor of Science degree: Students in this group must begin study by satisfactorily completing the course and internship requirements of the Master of Science program in Forensic Chemistry, not including the Master of Science paper.
2. Students holding a Master of Science degree in Forensic Science: The program for students in this group is designed to help strengthen background knowledge and skills in analysis, materials science, or toxicology.
3. Students holding a Master of Science degree in Chemistry, Materials Science, or Medicinal Chemistry: Students in this group take required program courses for the necessary forensic background.

Upon completion of initial course requirements as generally described above, students concentrate on advanced study in the area of their major specialization. Program requirements include comprehensive examinations and thesis research at the Institute of Chemical Analysis, Applications, and Forensic Science. An important optional feature of the program is a recommended six- to twelve-month internship at a major forensic research laboratory, either in the United States or abroad.

Students entering the Ph.D. program with a Bachelor of Science degree in Chemistry can generally complete requirements for the degree within four years, not including an internship.

For Information and Application

Students interested in the Ph.D. program should be aware that academic regulations and program requirements, as well as tuition, fees, and other program aspects subject to University administrative guidelines, may not correspond to those described in this bulletin for the Master of Science program in Criminal Justice. For more detailed information regarding such matters, or to apply for admission to the Ph.D. program, applicants should write or telephone the Program Director at the address below:

Institute of Chemical Analysis, Applications,
and Forensic Science
Northeastern University
360 Huntington Avenue
Boston, Massachusetts 02115
Telephone: 617-437-2864

Graduate Faculty and Staff

Norman Rosenblatt, A.B., M.A., Ph.D. (University of Pennsylvania), *Dean, College of Criminal Justice*

Robert D. Croatti, A.B. (Northeastern University), *Associate Dean, College of Criminal Justice*

Theodore N. Ferdinand, Ph.D. (University of Michigan), *Graduate Program Director/Professor of Criminal Justice: Juvenile Delinquency, Comparative Criminology, History of Crime and Criminal Justice*

Romine R. Deming, Ph.D. (Iowa State University), *Professor of Criminal Justice: Law Enforcement, Conflict Management, Planning, Corrections*

Edith E. Flynn, Ph.D. (University of Illinois), *Professor of Criminal Justice: Criminological Theory, Corrections*

James A. Fox, Ph.D. (University of Pennsylvania), *Assistant Professor of Criminal Justice: Statistical Research Methods, Criminology*

Robert R. J. Gallati, J.D., LL.M., S.J.D. (New York University), *Professor of Criminal Justice: Law Enforcement Practice and Private Security Management*

John H. Laub, Ph.D. (SUNY-Albany), *Assistant Professor of Criminal Justice: Juvenile Criminal Behavior, Criminology, Research Methods*

Nicole F. Rafter, Ph.D. (SUNY-Albany), *Assistant Professor of Criminal Justice: Theory and History of Criminology and Criminal Justice, Women and the Criminal Justice System*

Frank A. Schubert, J.D. (University of Wisconsin), *Assistant Professor of Criminal Justice: Legal Issues in Law Enforcement, Law Enforcement Planning*

Joseph J. Senna, M.S.W. (Fordham University), J.D., *Professor of Criminal Justice: Criminal Justice Administration, Legal Factors in Criminal Justice*

Robert Sheehan, M.A. (Michigan State University), J.D., *Professor of Criminal Justice: Law Enforcement Practice and Management*

Wallace Sherwood, J.D., LL.M. (Harvard University), *Assistant Professor of Criminal Justice: Constitutional Law, Criminal Law*



General Information

Academic Calendar

Fall Quarter 1982

Registration period

Burlington	Sept. 14-15	1:00-3:00 p.m., 5:30-8:00 p.m.
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Boston	Sept. 20-23	1:00-8:00 p.m.
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Classes begin	Sept. 27	
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Examination period	Dec. 13-17	
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Winter Quarter 1982-83

Registration period

Burlington	Nov. 30	1:00-3:00 p.m., 5:30-8:00 p.m.
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Boston	Dec. 6-9	1:00-3:00 p.m., 5:30-8:00 p.m.
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Classes begin	Jan. 3	
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Examination period	March 21-25	
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Spring Quarter 1983

Registration period

Burlington	March 8	1:00-3:00 p.m., 5:30-8:00 p.m.
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Boston	March 14-17	1:00-3:00 p.m., 5:30-8:00 p.m.
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Classes begin	April 4	
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Examination period	June 13-17	
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Summer Quarter 1983

Registration period

Burlington	June 13-14	5:30-8:00 p.m.
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Boston	June 15-16	5:30-8:00 p.m.
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Classes begin	June 27	
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Examination period	Aug. 3-4	
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Calendar changes may be made. The University community will be notified if such changes are necessary.

University Holidays 1982-83

Columbus Day	Monday	October 11
Veterans Day	Thursday	November 11
Thanksgiving Recess	Thursday-Saturday	November 25-27
Christmas Vacation	Monday-Saturday	Dec. 20-Jan. 1
Martin Luther King Day	Saturday	January 15
Washington's Birthday	Monday	February 21
Patriot's Day	Monday	April 18
Memorial Day	Monday	May 30
Independence Day	Monday	July 4
Labor Day	Monday	September 5

Emergency Closing of the University

Northeastern University has made arrangements to notify students, faculty, and staff by radio when it becomes necessary to cancel classes because of extremely inclement weather. Radio stations WBZ, WEEI, WHDH, WJDA, WRBB, WRKO, WKOX, WHAV, WCOZ-FM, WNSR, WLYN-FM, WVBF-FM, WHUE, and WLLH will announce the University's decision to close.

Northeastern University Services for the Handicapped

The Northeastern University Office of Services for the Handicapped (OSH) was established to meet the needs of disabled members of the University community. Located in 5 Ell Center, the office is directly across the hall from the Bookstore and is staffed daily from 8:30 a.m. to 4:30 p.m., and evenings when necessary.

Special services available for disabled students through the OSH include:

1. Orientation: tactile maps, accessible travel routes, guided explanatory tours
2. Registration and Pre-registration assistance: ensures classroom accessibility and course adaptability
3. Counseling: personal, academic, vocational, and referral
4. Housing: Assistance in helping students identify and acquire necessary modifications in residence halls
5. Textbooks: Making available taped and braille textbooks and materials
6. Referral: Helping students identify services and assistance available at the University
7. Auxiliary Aids and Equipment: Includes the Perkins Braille, slates, styli, raised-line drawing kits, large-print typewriters, Visualtek reader, and wheelchairs
8. Information Clearinghouse: Resource materials include articles, periodicals, books, and other literature for, about, and by disabled individuals
9. General Assistance and Information: Services are available for preadmission inquiries, accessibility, parking, readers, interpreters, scribes, volunteer assistance, advocacy liaison with instructors and other University staff.

The OSH is also the meeting place for the Disabled Students Organization of Northeastern University.

Students with special needs are encouraged to contact the OSH during the summer to ensure that necessary preparations to provide academic and housing needs are made prior to their arrival on campus. An *Information Manual* for the disabled is currently being revised and will soon be available from the OSH. For further information please contact the OSH office or call 617-437-2675.

Equal Opportunity Policy

Northeastern University is committed to a policy of providing equal opportunity for all. In all matters involving admissions, registration, and all official relationships with students, including evaluation of academic performance, the University insists on a policy of nondiscrimination. Northeastern University is also an equal opportunity employer; it is institutional policy that there shall not be any discrimination against any employee or applicant for employment because of race, color, religion, sex, age, national origin, or on the basis of being a handicapped but otherwise qualified

individual. In addition, Northeastern takes affirmative action in the recruitment of students and employees. Inquiries concerning our equal opportunity policies may be referred to the University Affirmative Action Officer, 175 Richards Hall, 617-437-2133 or 2139. Northeastern's efforts to comply with the Title IX Educational Amendments of 1972 are also coordinated by the Dean and Director of Affirmative Action, 175 Richards Hall, 617-437-2133.

Family Educational Rights and Privacy Act

In accordance with the Family Educational Rights and Privacy Act of 1974, Northeastern University permits its students to inspect their records wherever appropriate and to challenge specific parts of them when they feel it necessary to do so. Specific details of the law as it applies to Northeastern are printed in the *Student Handbook* and are distributed annually at registrations of University College and the graduate schools.

Delivery of Services

The University assumes no liability, and hereby expressly negates the same, for failure to provide or delay in providing educational or related services or facilities or for any other failure or delay in performance arising out of or due to causes beyond the reasonable control of the University, which causes include, without limitation, power failure, fire, strikes by University employees or others, damage by the elements and acts of public authorities. The University will, however, exert reasonable efforts, when in its judgment it is appropriate to do so, to provide comparable or substantially equivalent services, facilities, or performance, but its inability or failure to do so shall not subject it to liability.

This Northeastern University bulletin contains *current information* regarding the University calendar, admissions, degree requirements, fees and regulations, and such information is not intended to be and should not be relied upon as a statement of the University's contractual undertakings.

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We at Northeastern will do our best to make available to you the finest education we can provide, the most stimulating atmosphere in which to learn, and the most congenial conditions under which you may enjoy the learning

experience. But the quality and the rate of progress of your academic career is in large measure dependent upon your own abilities, commitment, and effort. You will be a full participant in an educational partnership. We will and, indeed, can only make the opportunities available to you; it is up to you to take advantage of them.

This is equally true with your career upon graduation. We cannot guarantee that you will obtain any particular job; that will depend upon your own skills, achievement, presentation, and other factors such as market conditions at that time. Similarly, in many professions and occupations there are increasing requirements imposed by federal and state statutes and regulatory agencies for certification or entry into a particular field. These may change during the period of time when you are at Northeastern and they may vary from state to state. While we will be ready to help you find out about these requirements and changes, it is your responsibility to initiate the inquiry because we cannot know what your expectations and understanding are unless you tell us.

In brief, what we are saying to you is that we are here to offer you educational opportunities and choices and to assist you in finding the direction in which you want to steer your educational experience. But you are a partner in this venture with an obligation and responsibility to yourself.

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